

(REFERENCE COPY - Not for submission)

# FCC Form 399: Reimbursement Request

Facility 25456 Service: DTV Call WBZ-TV Channel: 20 (UHF)

Sign:

0000027825

Number:

ID:

File

FRN: **0021079769** Date **02/07** 

Submitted: /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 Name and Information Reimbursement Contact 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	
Manufacturer and Type	Model	Diamond
	Year	2008
	Туре	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 Retune 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
	Туре	N/A
	Size	N/A
	Other Size	N/A
Transmitter Building Addition/Modification or Leasehold Improvement	Does the Transmitter Building require an addition, modification, other leashold improvement?	No
	Size	N/A
Channel 14 Costs	Is an RF Consulting Engineer needed?	N/A
	Is a channel 14 Mask Filer needed?	N/A
	Is additional field engineering time needed?	N/A
	Number of Days	N/A

# Auxiliary

**Other Transmitter Cost Not Listed** 

**Transmitter** Information not provided.

# Primary Transmitter

# **Existing Transmitter Information**

Section	Question	Response
Existing Transmitter Description	Type of change	Purchase New
	Use	Primary (Main)
	Description of Use	N/A
	Ownership	Owned
	Owner	N/A
	Site	N/A
	Is this transmitter currently shared with another station?	No
	Is this transmitter currently in operating condition?	Yes
Existing Transmitter	Manufacturer	
Manufacturer and Type	Model	Sigma
	Year	1999
	Туре	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
	Туре	N/A
	Size	N/A
	Other Size	N/A
Transmitter Building Addition/Modification or Leasehold Improvement	Does the Transmitter Building require an addition, modification, other leashold improvement?	No
	Size	N/A
Channel 14 Costs	Is an RF Consulting Engineer needed?	N/A
	Is a channel 14 Mask Filer needed?	N/A
	Is additional field engineering time needed?	N/A
	Number of Days	N/A

Primary Transmitter Other Transmitter Cost Not Listed

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

#### **Antennas**

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

#### **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	Class	Full Power
Manufacturer and Type	Mounting	Top Mount
	Antenna position in stack	Тор
	Polarization	Horizontal
	Туре	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

#### **New Antenna Costs**

Section	Question	Response
New Antenna	Use	Primary (Main)
Description	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	Class	Full Power
Manufacturer and Types	Mounting	Top Mount
	Antenna position in stack	Not in Stack
	Polarization	Elliptical
	Туре	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. Pretransition antenna has 120 panels. See Exhibit 5.

#### **Other Antenna Costs**

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	Yes
	Туре	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

#### **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	Class	Full Power
Manufacturer and Type	Mounting	Top Mount
	Antenna position in stack	Bottom
	Polarization	Elliptical
	Туре	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
	Туре	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?	В
	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 Seffien	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	Manufacturer	Dielectric
Line Manufacturer and Type	Туре	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

#### Other Transmission Line Expenses Not Listed

Transmission	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 Transmissio

#### **New Transmission Line**

n Settion	Question	Response
New Transmission Line	Use	Interim
Costs	Description of Use	N/A
	Change Type	Lease New
	Туре	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.		

# Other Transmission Line Expenses Not Listed

Interim	rim Other Transmission Line Expenses Not Listed			
Transmissio	n Line 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	Do you have a tower registration number?	Yes
Structure Registration	ASR Number	1004233
Coordinates (NAD83 (	Latitude (NAD83)	42° 18' 10.7" N-
North American Datum of 1983))	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

Call Sign	Service
WBZ-FM	FM
WWBX	FM
WBOS	FM
WFXT	DTV
WLVI	DTV
WODS	FM
	WBZ-FM WWBX WBOS WFXT WLVI

#### 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

<b>Helicopter Services</b>
Required

Are helicopter services required?

No

# Auxiliary Tower

# Other Tower Expenses Not Listed

Name	Description
Tower Permit Packages	Tower and ground equipment drawing package. Required for local approvals. See Exhibit 6.
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.

# 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	Do you have a tower registration number?	Yes
Structure Registration	ASR Number	1003433
Coordinates (NAD83 (	Latitude (NAD83)	42° 18' 37.0" N-
North American Datum of 1983))	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
65684	WCVB-TV	DTV
18783	WYDN	DTV
10542	WKLB-FM	FM
73982	WSBK-TV	DTV
72098	WGBX-TV	DTV
68241	WBUR-FM	FM
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

Section	Question	Response
Services Costs 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	Prepare and file Form FCC Construction Permit Application	No
Services	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

# Other Professional Services Expenses Not Listed

I Services Costs	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 Justification
Interim Transmitter ULXTE-72	\$1,631,918.82	\$1,352,186.24		\$435,088.75	
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
Ice Shield	\$4,000.00	\$4,000.00	Required to protect outdoor HVAC units.	N/A	N/A
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
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	N/A	N/A

			shared space. This install is to provide security for broadcasters and sufficient power for transmitters. See Exhibit 6.		
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.	\$435,088.75	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 currently does not support the required power capacity. See Exhibit 6.	N/A	N/A
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	N/A	N/A

			broadband antenna. See Exhibit 6.		
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 repack equipment. 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
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	N/A	N/A

the power of the
three
transmitters at
30% efficiency.
See Exhibit 6.

Liquid Cooled Solid State Transmitter 35 - 50 kW  Other Electrical Service: Transformer and surge suppressor. See Exhibit 3, Item D.  Auxiliary Transmitter UAXTE-24  UHF - Air Cooled Solid State Transmitter 14.4 kW  Transformer See Exhibit 3, Item D.  \$392,500.00  \$392,500.00  \$392,500.00  Widelity Catalog Pricing for 15 kW. Actual replacement transmitter 14.4 kW  \$25,550.00  \$24,300.00  N/A  N/A  N/A  N/A  N/A  N/A  N/A  N				See Exhibit o.		
Liquid Cooled Solid State Transmitter 35 - 50 kW  Other \$12,998.82 \$12,998.82 \$12,998.82 Transformer and surge suppressor. Required for proper operation of transmitter. See Exhibit 3, Item D.  Auxiliary Transmitter UAXTE-24  UHF - Air Cooled Solid State Transmitter 14.4 kW  Transmitter 14.4 kW  Transformer \$25,550.00 \$24,300.00 \$175,003.77  NA  NA  NA  NA  NA  NA  NA  NA  NA	Transmitter	\$1,485,998.82	\$1,312,554.72		\$449,676.77	
Electrical Service: Transformer and surge suppressor. See Exhibit 3, Item D.  Auxiliary Transmitter UAXTE-24  UHF - Air Cooled Solid State Transmitter 14.4 kW  Transmitter 14.4 kW  Transformer 3 phase (/480v - 150 KVA  Sub-total \$3,535,967.64 \$3,081,540.96 N/A \$1,059,769.29 N.  Required for proper operation of transmitter. See Exhibit 3, Item D.  \$175,003.77  Widelity Catalog Pricing for 15 kW. Actual replacement transmitter is an upgrade. An estimate is provided as Exhibit 9.  Transformer 3 phase (/480v - 150 KVA  Sub-total \$3,535,967.64 \$3,081,540.96 N/A \$1,059,769.29 N.  Total for all \$7,375,743.54 \$4,072,006.86 N/A \$1,062,769.29 N.	Liquid Cooled Solid State Transmitter	\$1,473,000.00	\$1,299,555.90	Items A, B, C,	\$449,676.77	N/A
### Transmitter UAXTE-24  UHF - Air Cooled Solid State Transmitter 14.4 kW  Transformer 3 phase /480v - 150 kVA  Sub-total \$3,535,967.64 \$3,081,540.96 N/A \$1,059,769.29 N/A  Total for all \$7,375,743.54 \$4,072,006.86 N/A \$1,062,769.29 N/A	Electrical Service: Transformer and surge suppressor. See Exhibit	\$12,998.82	\$12,998.82	surge suppressor. Required for proper operation of transmitter. See Exhibit 3,	N/A	N/A
Cooled Solid State Transmitter 14.4 kW  Transformer \$25,550.00 \$24,300.00 N/A N/A N/A N/A N/A N/A Sub-total \$3,535,967.64 \$3,081,540.96 N/A \$1,059,769.29 N/A Total for all \$7,375,743.54 \$4,072,006.86 N/A \$1,062,769.29 N/A	Transmitter	\$418,050.00	\$416,800.00		\$175,003.77	
3 phase /480v - 150 KVA <b>Sub-total</b> \$3,535,967.64 \$3,081,540.96 N/A \$1,059,769.29 N/A <b>Total for all</b> \$7,375,743.54 \$4,072,006.86 N/A \$1,062,769.29 N/A	Cooled Solid State Transmitter	\$392,500.00	\$392,500.00	Pricing for 15 kW. Actual replacement transmitter is an upgrade. An estimate is provided as	\$175,003.77	N/A
<b>Total for all</b> \$7,375,743.54 \$4,072,006.86 N/A \$1,062,769.29 N/A	3 phase /480v - 150	\$25,550.00	\$24,300.00	N/A	N/A	N/A
	Sub-total	\$3,535,967.64	\$3,081,540.96	N/A	\$1,059,769.29	N/A
systems		\$7,375,743.54	\$4,072,006.86	N/A	\$1,062,769.29	N/A

Actual Information Description	File Name	
100 Feet 4-Inch Conduit	Information not provided.	
Ice Shield	Information not provided.	
New Sub Panels	Information not provided.	
Other Building Addition Size: 1500.0	Information not provided.	
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	Component Description: Amount:	Interim Transmitter Down Payment \$435,088.75
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.	
Other Electrical Service: Various Electrical Service from attached GatesAir Estimate (see Exhibit 3).	Information not provided.	
Other HVAC Service Type: C Size:20 (Other)	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:	Auxiliary
		Transmitter Down
		Payment
	Amount:	\$175,003.77
Transformer 3 phase/480v -	Information not provided.	

# **Cost Information**

#### **Antennas**

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	
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
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
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
Sweep test of existing antenna	\$6,730.00	\$3,000.00	See Exhibit 6.	N/A	N/A
New combiner, cost per	\$84,200.00	\$135,400.00	Dual chains of mask filter /combiner	N/A	N/A

channel	modules per
(without	Dielectric
antenna)	layout.
	Includes input
	power
	dividers and
	output
	switching to
	allow
	transmitter
	alignment
	/testing not
	otherwise
	available.
	Eliminates
	need for
	mask filter.
	See Exhibit
	16 Line 3-C-
	1.

Primary Antenna TUM-AP- O4-14/56H-	\$1,211,130.00	\$244,000.00		\$0.00	
2-T Install	\$11,250.00	\$11,250.00	Installation	N/A	N/A
Combiner			cost of the		
			new combiner.		
			Required to		
			replace		
			existing		
			combiner and		
			support		
			required multi-		
			station antenna. See		
			Exhibit 15.		
UHF - High	\$1,090,000.00	\$126,250.00	TUM-AP-O4-	N/A	N/A
Power Top			14/56H-2-T		
Mount			Top Mount 14		
(200-1000			bay		
kW), Four			Broadband		
Station broadband			antenna, with 56 elements		
panel			total, required		
antenna,			to		
elliptically			accommodate		
or			the new		

circularly polarized			repack frequencies. This antenna will be a four- sided assembly mast. See Exhibit 15.		
Sweep test of existing antenna	\$6,730.00	\$5,000.00	N/A	N/A	N/A
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
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
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	\$1,062,769.29	N/A

# **Cost Information**

#### **Transmission Line**

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	
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
Nitrogen Generator	\$3,000.00	\$3,000.00	Nitrogen Generator Upgrade. See Exhibit 16, Line 1-B-1.	N/A	N/A
Primary Transmission Line	\$51,750.00	\$51,750.00		\$0.00	
Nitrogen Generator	\$3,000.00	\$3,000.00	Nitrogen Generator Upgrade. See Exhibit 15, Line 1-B-1.	N/A	N/A
Refurbish Main	\$48,750.00	\$48,750.00	This cost is to refurbish two	N/A	N/A

Transmission			(2) existing 8-		
Line			3/16"		
			transmission		
			lines to be		
			utilized by		
			both the new		
			top mount		
			antenna &		
			side mounted		
			antennas.		
			See Exhibit		
			15.		
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	\$1,062,769.29	N/A

## **Cost Information**

#### **Tower Equipment and Rigging Costs**

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justification
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
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 brackets. See Exhibit 15.	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	N/A	N/A

repack
equipment.
Rigorous
Structural
analysis to
access the
structural
capacity and
modifications
needed. See
Exhibit 15 3-A-
1.

Auxiliary Tower GTOWER	\$604,000.00	\$90,180.00		\$0.00	
			failure is expected to be in the minor category. See Exhibit 5.		
			The structural		
			tower to fail.		
			cause the		
			project will		
			the repack		
			required for		
			appurtenances		
			by the new		
			loads imposed on the tower		
/modifications			additional		
reinforcement			that the		
Minor tower	\$158,000.00	\$25,000.00	It is expected	N/A	N/A
			15.		
			See Exhibit		
			management.		
			project		
			installation		
			management and RF		
			project		
Management			modification		
Project			tower		
Tower	\$5,250.00	\$5,250.00	(44) hours on	N/A	N/A
			1.		
			Exhibit 15 3-A- 1.		

Structural

engineering

tower load

study for well

\$12,600.00

\$4,380.00

Mapping and

Rigorous

Structural

analysis to

N/A

N/A

documented tower			access the structural capacity and modifications needed to accommodate the repacked equipment. See Exhibit 16.		
Minor tower reinforcement /modifications	\$158,000.00	\$17,500.00	It is expected that the additional loads imposed on the tower by new repack equipment will cause the tower to fail.  Minor reinforcement is necessary.  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
Tower Permit Packages	\$9,400.00	\$9,400.00	Prepare tower, building, and ground drawings for local permits and approvals. Required to support	N/A	N/A

			required modifications needed for repack. See Exhibit 6.		
Construction Management	\$3,000.00	\$3,000.00	(9) hours on Modification project management and (15) hours for RF installation project management for a total of twenty (20) days. 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	\$1,062,769.29	N/A

## **Cost Information**

#### **Outside Professional Services**

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	
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
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
Attorney Fees - Negotiation of lease and other matters for shared locations	\$4,210.00	\$4,000.00	N/A	N/A	N/A

Prepare request for Special Temporary Authorization	\$2,050.00	\$1,500.00	N/A	N/A	N/A
Prepare engineering section of FCC Form 2100 (main), License to Cover Application	\$1,580.00	\$1,500.00	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
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
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	\$1,062,769.29	N/A

Actual Information Description	File Name	
RF System Test	Information not provided.	
LocalPermits	Information not provided.	
Attorney Fees - Negotiation of lease and other matters for shared locations	Information not provided.	
Prepare request for Special Temporary Authorization	Information not provided.	
Prepare engineering section of FCC Form 2100 (main), License to Cover Application	Information not provided.	
Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	Component Description:  Amount:	Preliminary Engineering and CP Application, Engineering Section. \$2,450.00
	Component Description:  Amount:	Coordinate "work around" to solve concerns regarding Canadian coordination.
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.	

## **Cost Information**

#### **Other Expenses**

Description	Predetermined Cost Estimate	Estimated Cost	Cost Justification	Actual Cost	Actual Cos Justificatio
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
DTV Medical Facility Notification	\$11,550.00	\$5,250.00	See Exhibit 7.	N/A	N/A
FCC Filing Fees - Special Temporary Authorization request	\$195.00	\$190.00	N/A	N/A	N/A
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	N/A	N/A

# Cost Information

#### **Grand Total**

	Predetermined Cost Estimate	Estimated Cost	Actual Cost
Total for all systems	\$7,375,743.54	\$4,072,006.86	\$1,062,769.29

Reimbursem	envestiatus	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

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.
- The above-named entity acknowledges that all certifications and attached documentation are considered material representations.
- 3. The above-named entity acknowledges the submission of the information herein creates no obligation on the part of the government to pay any amount.
- 4. The above-named entity certifies that the equipment and services paid for with money from the TV Broadcaster Relocation Fund are necessary to change channels (broadcasters) or to continue to carry the

signal of a broadcaster that changes channels (MVPD).

- 5. The above-named entity certifies that all payments from the TV Broadcaster Relocation Fund (Fund) received by the entity listed on this form will be used only for expenses that are eligible for reimbursement from the Fund.
- 6. The above-named entity certifies that it will maintain and provide to the Commission detailed records, including receipts, of all costs eligible for reimbursement actually incurred.
- 7. The above-named entity acknowledges that overpayments or payments in error must be promptly refunded to the Commission.
- 8. The above-named entity certifies that it is in full compliance with all statutes, rules, regulations and governmental requirements for which compliance is a pre-requisite for obtaining the payments herein requested.

I declare, under penalty of perjury, that I am an authorized representative of the abovenamed applicant for the Authorization(s) specified above. Andrew J Siegel Assistant Secretary

02/07/2018

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.
- The above-named entity acknowledges that all certifications and attached documentation are considered material representations.
- 4. The above-named entity acknowledges the submission of the information herein

- creates no obligation on the part of the government to pay any amount.
- 5. The above-named entity certifies that the equipment and services paid for with money from the TV Broadcaster Relocation Fund are necessary to change channels (full power and Class A stations) and/or otherwise modify a television station's facility as a result of the spectrum repack (LPTV/TV Translator stations); or to minimize service disruption resulting from a repacked television station (FM stations); or to continue to carry the signal of a broadcaster that changes channels (MVPD).
- 6. The above-named entity certifies that all payments from the TV Broadcaster Relocation Fund (Fund) received by the entity listed on this form will be used only for expenses that are eligible for reimbursement from the Fund.
- 7. The above-named entity certifies that the cost information /documents submitted reflect costs actually incurred.
- 8. The above-named entity acknowledges that overpayments or payments in error

must be promptly refunded to the Commission.

9. The above-named entity certifies that it is in full compliance with all statutes, rules, regulations and governmental requirements for which compliance is a prerequisite for obtaining the payments herein requested.

I declare, under penalty of perjury, that I am an authorized representative of the abovenamed applicant for the Authorization(s) specified above. Andrew J Siegel Assistant Secretary

02/07/2018

#### **Attachments**