

(REFERENCE COPY - Not for submission)

FCC Form 399: Reimbursement Request

Facility 4318 Service: DTV Call WNMU Channel: 8 (High VHF)

ID:

Sign:

File **0000026956**

Number:

FRN: **0002735751** Date **07/08**

Submitted: /2017

Applicant Information

Applicant Name, Type, and Contact Information

Applicant	Address	Phone	Email	Applicant Type
BOARD OF TRUSTEES, NORTHERN MICHIGAN UNIVERSITY Doing Business As: BOARD OF TRUSTEES, NORTHERN MICHIGAN UNIVERSITY	Mr. Eric Smith WNMU (TV) 1401 PRESQUE ISLE DRIVE MARQUETTE, MI 49855 United States	+1 (906) 227- 1314	esmith@nmu. edu	Government Entity

Reimbursement Contact Name and Information Reimbursement Contact Information

Applicant	Address	Phone	Email
[Confidential]			

Preparer Contact Information

Preparer Contact Name and Information

Applicant	Address	Phone	Email
Benjamin Pidek Consulting Engineer Mid-State Consultants	6197 Miller Rd., Suite 1 Swartz Creek, MI 48473 United States	+1 (810) 226- 0750	bpidek@mscon. 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.	No
Briefly describe transition plan	WNMU must replace its main and auxiliary antenna and main and auxiliary transmitter in order to move it its new channel. See attached narrative for a more detailed explanation.

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	Platinmum PTCD10P1i
	Year	2009
	Туре	Solid State
	Solid State Cooling	Air Cooled
	Solid State Power Capacity	2.26 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	VAXTE-4
	Transmitter Type	Solid State
	Solid State Cooling	Air Cooled
	Solid State Power capacity	2.8 kW
	Justification for New Transmitter	Current transmitter is no longer supported by the manufacturer except for maintenance. Available parts are in limited supply and in some cases are no longer available. Manufacturer says it cannot be re- tuned.

Primary Transmitter

Other Transmitter Costs

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

	Transformer (480V)	No
	Power	N/A
	Rigid Conduit and Wiring	No
	Size	N/A
	Length	N/A
	Other Electrical Service	Yes
	Description	Necessary conduit, wiring and fuse disconnects as quoted by electrical contractor.
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

Name Description

Transmitter Blo	lg. Rearrangement
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Equipment racks will need to be moved in the transmitter building in order to make space for the new transmitter. HVAC ducting will also need to be rerouted.

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	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	Class	Full Power
Manufacturer and Type	Mounting	Top Mount
	Antenna position in stack	Not in Stack
	Polarization	Horizontal
	Туре	Slotted Coaxial
	Number of Stations Supported	N/A
	Number of Panels	N/A
	Design power capacity in use	N/A
	Lower Limit	N/A
	Upper Limit	N/A
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	15.4 kW

Manufacturer	
Model	ATW9V3- HTO-13-R
Year	2009

New Antenna Costs

Section	Question	Response
New Antenna Description	Use	Primary (Main)
	Description of Use	N/A
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	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	Class	Full Power
Manufacturer and Types	Mounting	Top Mount
	Antenna position in stack	Not in Stack
	Polarization	Horizontal
	Туре	Slotted Coaxial
	Number of Stations Supported	N/A
	Number of Panels/Bays	N/A
	Lower Limit	N/A
	Upper Limit	N/A
	Design power capacity in use	N/A
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	15.6 kW
	Manufacturer	
	Model	THV-9A8-R

Year	2019
Justification for New Antenna	Existing main antenna is a coaxial slot antenna that is channel specific and cannot be reused on the new
	channel.

Other Antenna Costs

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	No
	Туре	
	Number of channels supported	N/A
	Frequencies of channels supported	N/A
	Frequency	N/A
	Do you need a combiner output splitter /switcher for dual feed lines?	N/A
Elbow Complex	Do you require the separate purchase of the Elbow Complex?	No
	Broadband or Single Channel?	N/A
	Feed Line Size	N/A
Side Mount Brackets	Do you require the separate purchase of side mount brackets for a high power antenna?	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	Yes
	transmission line and antenna?	

Other Antenna Cost Not Listed

Interim Antenna

New Antenna Costs

Section	Question	Response
New Antenna Description	Use	Interim
	Description of Use	N/A
	Change Type	Purchase New
	Ownership	Owned
	Owner	N/A
	Is antenna shared?	No
	Is antenna directional?	Yes
	Will antenna be located on or in close proximity to an antenna farm?	No
New Antenna	Class	Full Power
Manufacturer and Type	Mounting	Side Mount
	Antenna position in stack	Not in Stack
	Polarization	Horizontal
	Туре	Broadband Slot
	Number of Stations Supported	1
	Number of Panels/Bays	8
	Lower Limit	174.00 MHz
	Upper Limit	216.00 MHz
	Design power capacity in use	20.0 %
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	20.0 kW
	Manufacturer	
	Model	TLS-V8BB
	Year	2019

Justification for New Antenna	WNMU will
Justilication for New Antenna	
	need an
	interim
	facility for
	operation
	while it
	changes
	out the
	antenna on
	the main
	facility.

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?	Yes

Interim Antenna

Other Antenna Cost Not Listed

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

Interim

New Transmission Line

	n Line Section	Question	Response
	New Transmission Line	Use	Interim
	Costs	Description of Use	N/A
		Change Type	Purchase New
		Туре	Flexible Air
		Diameter	3 inches
		Segment Length	N/A
		Other Segment Length	
		Number of parallel runs	1
		Length	730 feet per run

Justification for New Transmission Line	WNMU has been assigned Phase 9 for construction which will be during the winter months in Michigan. It will need to construct the new facility in the previous year and will need trans line for the interim facility while it waits for its testing
	date.

Other Transmission Line Expenses Not Listed Interim
Transmission ionetion not provided.

Tower Equipment And Rigging Costs

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

Primary Tower

Add 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?	Yes
	Is tower compliant with Rev G?	Yes
Existing Tower Structure	Do you have a tower registration number?	Yes
Registration	ASR Number	1023010
Coordinates (NAD83 (North American Datum	Latitude (NAD83)	46° 21' 10.0" N-
of 1983))	Longitude (NAD83)	087° 51' 15.0" W-
	Overall Structure Height	1100.71 feet
	Support Structure Height	999.99 feet
	Ground Elevation Above Mean Sea Level (AMSL)	1499.98 feet

Structure Type	TOWER - Free Standing or Guyed Structure
Tower Owner	BOARD OF TRUSTEES OF NORTHERN MICHIGAN UNIVERSITY DBA = WNMU TV FM
Date Constructed	10/09/1972

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

ı	Name	Description
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Interim Antenna Rigging	Rigging necessary for installation of interim antenna and transmission line.
PE Review of Rigging Plan	Professional Engineering review of proposed rigging plan as required by ANSI /ASEE A10.48 and ANSI/TIA 322 standards.

Outside Professional

Section	Question	Response
Services Costs Outside Project Management Services	Do you require outside project management services?	Yes
	Number of Hours	200
	Explanation	Project manager needed to manage all work at transmitter site required to transition to new channel (both the main and interim facilities). With the size of the current engineering staff, WNMU cannot spare personnel to ensure these tasks are completed.
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
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	Yes

Attorney and Other Outside Consulting

Services

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

Services Costs	Description
Site Survey	GatesAir performed a site survey to access changes to facility as necessary to transition to new channel including, power and HVAC requirements, available transmitter room space and existing antenna and transmission line RF characteristics at new channel.

Other Expenses

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

Other Expenses

Other Expenses Not Listed

Name	Description
Employee Time, Travel and Per Diem	Time and travel expenses needed by NMU employees to work on the transition to a new channel.
Performance Bond	NMU typically follows AIA contract guidelines which requires on a project of this magnitude that construction bonds be required as part of the bid process. Bonds are necessary to ensure project completion and to protect necessary down payments.

Transmitters

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

Description Primary	Predetermined Cost Estimate \$250,700.00	Estimated Cost \$241,300.00	Estimated Cost Justification	Actual Cost \$0.00	Actual Cost Justification
Transmitter VAXTE-4	\$230,700.30	Ψ241,300.00		ψ0.00	
Other Electrical Service: Necessary conduit, wiring and fuse disconnects as quoted by electrical contractor.	\$10,000.00	\$10,000.00	N/A	N/A	N/A
Transmitter Bldg. Rearrangement	\$50,000.00	\$50,000.00	N/A	N/A	N/A
High VHF - Air Cooled Solid State Transmitter 1.1 . 4.4 kW	\$152,500.00	\$145,000.00	N/A	N/A	N/A
Switchgear - industrial 800 amp	\$38,200.00	\$36,300.00	N/A	N/A	N/A
Sub-total	\$250,700.00	\$241,300.00	N/A	\$0.00	N/A
Total for all systems	\$1,865,700.00	\$1,809,030.00	N/A	\$0.00	N/A

Components

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 TLS-V8BB	\$106,730.00	\$106,400.00		\$0.00	
High VHF - High Power Side Mount One Station horizontally polarized	\$100,000.00	\$100,000.00	N/A	N/A	N/A
Sweep test of existing antenna	\$6,730.00	\$6,400.00	N/A	N/A	N/A
Primary Antenna THV- 9A8-R	\$331,730.00	\$331,400.00		\$0.00	
High VHF - High Power Top Mount One Station horizontally polarized	\$325,000.00	\$325,000.00	N/A	N/A	N/A
Sweep test of existing antenna	\$6,730.00	\$6,400.00	N/A	N/A	N/A
Sub-total	\$438,460.00	\$437,800.00	N/A	\$0.00	N/A
Total for all systems	\$1,865,700.00	\$1,809,030.00	N/A	\$0.00	N/A

Components

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	\$43,070.00	\$40,880.00		\$0.00	
Flexible Air Transmission Line - dielectric, 3"	\$43,070.00	\$40,880.00	N/A	N/A	N/A
Sub-total	\$43,070.00	\$40,880.00	N/A	\$0.00	N/A
Total for all systems	\$1,865,700.00	\$1,809,030.00	N/A	\$0.00	N/A

Components

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	\$751,600.00	\$719,500.00		\$0.00	
Structural engineering tower load study for well documented tower	\$12,600.00	\$12,000.00	N/A	N/A	N/A
Major tower reinforcement /modifications	\$421,000.00	\$400,000.00	N/A	N/A	N/A
Tall Tower (greater than 500')	\$210,500.00	\$200,000.00	N/A	N/A	N/A
PE Review of Rigging Plan	\$7,500.00	\$7,500.00	N/A	N/A	N/A
Interim Antenna Rigging	\$100,000.00	\$100,000.00	N/A	N/A	N/A
Sub-total	\$751,600.00	\$719,500.00	N/A	\$0.00	N/A
Total for all systems	\$1,865,700.00	\$1,809,030.00	N/A	\$0.00	N/A

Components

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	\$81,820.00	\$78,050.00		\$0.00	
Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	\$3,155.00	\$3,000.00	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 request for Special Temporary Authorization	\$2,050.00	\$1,500.00	N/A	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), Construction Permit Application	\$5,260.00	\$5,000.00	N/A	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), License to Cover Application	\$2,365.00	\$2,250.00	N/A	N/A	N/A

Attorney Fees - Prepare and File request for Special Temporary Authorization	\$3,680.00	\$3,500.00	N/A	N/A	N/A
ASR modification (prepare FCC Form 854)	\$2,105.00	\$2,000.00	N/A	N/A	N/A
FAA consultant, including cost of preparing FAA Form 7460 (Notice of Proposed Construction), if needed for height increase	\$2,105.00	\$2,000.00	N/A	N/A	N/A
Site Survey	\$15,300.00	\$15,300.00	N/A	N/A	N/A
Project management of the transition	\$31,600.00	\$30,000.00	N/A	N/A	N/A
Prepare and or review reimbursement form	\$2,630.00	\$2,500.00	N/A	N/A	N/A
Address transition timing and coordination issues w/ other stations and wireless	\$2,630.00	\$2,500.00	N/A	N/A	N/A
Perform engineering study for new channel assignment and antenna development	\$7,360.00	\$7,000.00	N/A	N/A	N/A
Sub-total	\$81,820.00	\$78,050.00	N/A	\$0.00	N/A

Total for all	\$1,865,700.00	\$1,809,030.00	N/A	\$0.00	N/A
systems					

Components

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	\$300,050.00	\$291,500.00		\$0.00	
Equipment Delivery and Handling Charges	\$30,000.00	\$30,000.00	N/A	N/A	N/A
Develop and air announcement of upcoming channel change	\$5,000.00	\$5,000.00	N/A	N/A	N/A
MVPD Notification of Channel Change	\$2,500.00	\$2,500.00	N/A	N/A	N/A
Employee Time, Travel and Per Diem	\$130,000.00	\$130,000.00	N/A	N/A	N/A
Equipment Storage	\$5,000.00	\$5,000.00	N/A	N/A	N/A
DTV Medical Facility Notification	\$11,550.00	\$3,000.00	N/A	N/A	N/A
Disposal Costs (for equipment and other waste, net of any salvage value)	\$20,000.00	\$20,000.00	N/A	N/A	N/A
Performance Bond	\$96,000.00	\$96,000.00	N/A	N/A	N/A
Sub-total	\$300,050.00	\$291,500.00	N/A	\$0.00	N/A
Total for all systems	\$1,865,700.00	\$1,809,030.00	N/A	\$0.00	N/A

Components

Grand Total

	Predetermined Cost Estimate	Estimated Cost	Actual Cost
Total for all systems	\$1,865,700.00	\$1,809,030.00	\$0.00

Reimbursem	entestiatus	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.
- 2. The above-named entity acknowledges that all certifications and attached documentation are considered material representations.
- 3. The above-named entity acknowledges the submission of the information herein creates no obligation on the part of the government to pay any amount.

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

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

I declare, under penalty of perjury, that I am an authorized representative of the abovenamed applicant for the Authorization(s) specified above. Cathy A.
Niemi
Secretary
of Board of
Trustees

07/08/2017

Attachments