



THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

June 12, 2002

MEMORANDUM

TO: Montgomery County Planning Board
VIA: John A. Carter, Chief, Community-Based Planning Division *JAC*
FROM: Judy Daniel, Team Leader, Rural Area *JD*

REVIEW TYPE: Mandatory Referral
APPLYING FOR: Telecommunications Facility - Television Broadcasting Tower
CASE NUMBER: #01701-MDP-1

APPLICANT: Maryland Department of Budget and Management for Maryland Public Television
ZONE: Rural Density Transfer
LOCATION: Maryland State Highway Patrol Weigh Station, Southbound I-270
MASTER PLAN: Preservation of Agricultural and Rural Open Space
MCPB HEARING: June 20, 2002

STAFF RECOMMENDATION: APPROVAL with comments:

1. The applicant is bound by all submitted statements and plans.
2. The tower must be removed at the cost of the applicant when the facility is no longer being used.
3. The applicant to relocate the tower site to a nearby site in an existing clearing. Access to the new site to be located within an existing cleared corridor connecting the clearing with the existing road embankment.
4. The applicant to submit a modified NRI/FSD including a new site plan showing the relocated tower site area, forest cover, a new Limit of Disturbance (LOD), identification (including species and health) and location of all trees greater than 24" DBH that fall within the LOD and outward of the LOD 50 feet, and a letter from the Maryland Department of Natural Resources regarding rare, threatened and endangered species on the property.
5. The applicant to obtain approval of a Tree Protection Plan from M-NCPPC prior to release of sediment control permit or building permit, as appropriate.

PROJECT DESCRIPTION

The applicant for this project is the Maryland Department of Budget and Management (DBM), submitting it on behalf of Maryland Public Television (MPT). They are proposing to relocate a television broadcasting tower from its current site in southern Frederick County to this site at the Maryland State Highway Patrol Weigh Station on southbound I-270 in northern Montgomery County. The stated intent for this project is to locate an optimal location for the FCC required switch to digital broadcasting, and to provide better signal service to MPT viewers in southern Montgomery County.

The proposal is for a 445-foot tall, self-supporting tower with accompanying equipment shelter and access road from the weigh station parking area. The tower is to contain space for two MPT broadcast antennas and antennas for other government agencies.

Surrounding Neighborhood

The immediate surrounding area is rural with some scattered single-family residences. The closest dwelling to the proposed site is over 1,800 feet away. The immediately adjacent properties are rural in character with some farming and mixed open fields and woodlands. All of the surrounding area is in the Rural Density Transfer Zone. However, on the east side of I-270 there are some older homes and a recently platted subdivision (Little Bennett Estates) whose residents will have a direct view of the tower. Several of these properties are directly adjoining the weigh station property on the east side of I-270.

Site Description

The State owns approximately 22.6 acres for the two weigh stations on either side of I-270. There are approximately 11 acres on the west side where the tower is proposed. The proposed site has rolling topography, with a mix of sparse and dense forest cover except at the location of the weigh station, which is a paved area for the station house and parking bordered by a mowed area of grassy slope.

Proposal

MPT is the statewide public television network with six broadcast towers that service its television stations throughout the state of Maryland. The arrangements for MPT to locate a tower on this property owned by the Maryland Department of Transportation (DOT) have been coordinated with several State agencies, including DOT, DBM, the State Police, the Department of General Services-Real Estate Office, the Department of Natural Resources (DNR), and the Department of Planning/State Clearinghouse.

MPT states that the impetus for this new tower is to provide digital television as required by the FCC for all public television stations by 2003; and also to provide Maryland citizens in lower Montgomery County with better reception. They also state that due to the size and number of required antennas, co-location on an existing tower was not feasible. Further, the State required that MPT find land for the tower on existing State property, limiting potential locations.

The proposed use will include the 445-foot high self-supporting tower that MPT states will support MPT digital television (DTV) broadcasting (soon to be required by the FCC) and analog (NTSC - National Television Standards Committee) television broadcast in addition to various communications antennas for State and federal public safety agencies such as DNR, the State Highway Administration (SHA), the Maryland Institute for Emergency Medical Services System (MIEMSS) and the FBI. The tower will also support antennas for the future State Public Safety 700 MHZ Radio System. The tower facility will consist of the following elements:

- 445-foot tower sitting on a 35' x 35' concrete base
- 62' x 25' transmitter building
- Small parking area for service vehicles
- 62' x 20' concrete pad for a heat exchanger and storage of power supplies

The facility will be fenced with a locked gate, and accessed via a 10-foot wide gravel driveway off the weigh station drive. The proposed site for the facility is setback 180 feet from the closest property line.

MPT states in their application that they have been selected as a pilot station to develop a national model for digital broadcasting service and business opportunities by the America's Public Television Stations (APTS) group with funding by a Ford Foundation planning grant. The APTS project is designed specifically to assist public stations in developing prototype business and service models so that public TV stations everywhere can strengthen their own infrastructure to position themselves to create public interest content in the digital era.

MPT also states that the DBM did consider the potential for locating the tower at the new Montgomery County Seneca Correctional Facility, but a preliminary review by FCC counsel and MPT engineers found that the FCC could not approve this location due to expected interference to other television stations. Also, the tower must be moved to a new site because that location is in a depression of the terrain that severely restricts the MPT broadcast signal in lower Montgomery County.

The application has been reviewed by the Telecommunications Transmission Facilities Coordinating Group (the Tower Committee), which found that the tower was needed. A summary of their findings is discussed below.

Nature of a Mandatory Referral

The Section 7-112 of the Regional District Act requires all federal, State, and local governments and public utilities to submit proposed projects for a Mandatory Referral review and approval by the Commission. It requires that the Planning Board review and approve the proposed location and character of any structure or public utility prior to the project being located, constructed or authorized. The Board must conduct its review within 60 days of the submission of a complete application unless a longer period is granted by the applicant. If the Board fails to act within 60 days, the proposal is deemed approved. In case of disapproval, the Board must communicate its reasons to the applicant agency.

The Board's comments are advisory in that the statute allows the applicant to overrule the Planning Board's disapproval, or any conditions attached to the approval and proceed.

The Planning Board conducts a hearing to receive community comments during its regularly scheduled sessions for all projects requiring a full review. The staff notified the area civic associations when the project was accepted as a complete application and the 60-day clock started. This notice was placed in the Planning Board meeting agenda, and on the agency's website. All abutting and confronting property owners were notified, including those on the east side of I-270, as well as all applicable existing civic groups.

In the case of this application, although they had been working in conjunction with several other State agencies on this proposal for the past 18 months, DBM and MPT did not inform representatives of Montgomery or Frederick County of their intent to relocate and search for an alternate site until they were ready to proceed at the proposed location last fall.

The staff and the Tower Committee have reviewed this application in the same format as a special exception for a telecommunications tower although this proposal is exempt from special exception. MPT is a State agency and the proposed use is on State owned land.

ANALYSIS

Master Plan

The Functional Master Plan for the Preservation of Agricultural and Rural Open Space is silent on special exceptions. The RDT Zone allows public utility structures (which include television towers) by special exception.

Transportation

Access to the site will be via a gravel drive accessed via the pull-off drive for the weigh station. There are no discernable transportation issues related to this proposal since there will be no on-site personnel and only periodic visits to check or repair the equipment. There will be negligible impact on vehicular travel volumes as the only access will be to and from I-270.

Environmental

After review of the submitted documents, the Environmental staff was troubled by the proposed site of the MPT Tower as originally submitted due to forest issues. After reviewing aerial photographs it appeared that a different site on the same property would be more protective of the existing tree stands, but have no discernable impact on the tower requirements. They met on the site with the various State representatives and the new site was found acceptable. The applicant has agreed to relocate the tower site to meet this request and to submit revised documentation to reflect that change. The conditions for approval below reflect that agreement. The new site has fewer trees and is more easily accessed from the weigh station parking area.

Forest Conservation - Because this is a State project located on State land, jurisdiction for forest conservation law compliance rests with the Maryland Department of Natural Resources (DNR). However, the NRI/FSD was requested by M-NCPPC staff, was submitted, and has been approved (#4-02371).

As part of the previously outlined agreement to relocate the tower site to the nearby existing cleared area on the property, the applicant has agreed to submit a modified NRI/FSD to show the natural resources at the new site, and a new site plan and new limit of disturbance (LOD) report. This site relocation will result in greatly reduced forest impacts and will correspondingly reduce any mitigation that may be required. Initial consultation with DNR indicates that the relocated site will probably not require mitigation. However, exemption from forest conservation requirements does not preclude the need for a Tree Protection Plan to protect trees adjacent to the project site. This site has a number of specimen trees and other trees greater than 24" DBH. Accordingly, special efforts should be made to protect and preserve these trees.

Stormwater Management - The site is located within the I-270 Tributary within the Little Bennett Creek watershed. The Countywide Stream Protection Strategy (CSPS) assesses the tributary as having fair stream conditions, labeling it as a Watershed Restoration Area.

As a State project on State land, jurisdiction for stormwater management and erosion/sediment control requirements rests with the Maryland Department of the Environment (MDE). A waiver to stormwater quantity management based on the initial tower site location was submitted to MDE based on the project generating less than the maximum channel protection volume, in accordance with State law. There will be a projected 6% increase (0.28 cfs) in the 10-year discharge resulting from the proposed site changes, but it is expected that any additional stormwater from this project will be easily handled by the existing stormwater system in place at the truck weigh station. The only stormwater management improvement proposed for the site is to provide an 18" CMP or RCP beneath the proposed gravel access road entrance to the existing truck impound lot to allow for water to flow in the roadside grass channel. Water quality requirements will be met by utilizing the existing grass channel. Moving the tower site to the existing clearing should not significantly change the stormwater management picture.

Therefore, with the changes discussed above, the Environmental Planning staff recommends **approval** of the mandatory referral subject to the following conditions:

- Applicant to relocate the tower site to a nearby existing clearing. Access to the new site to be along an existing cleared corridor connecting the clearing with the existing road embankment.
- Applicant to submit a modified NRI/FSD including a new site plan showing the relocated tower site area, forest cover, a new Limit of Disturbance (LOD), identification (including species and health) and location of all trees greater than 24" DBH that fall within the LOD and outward of the LOD 50 feet, and a letter from the Maryland Department of Natural Resources regarding rare, threatened and endangered species on the property.

- Applicant to obtain approval of a Tree Protection Plan from M-NCPPC prior to release of sediment control permit or building permit, as appropriate.

Report from the Tower Committee

At their January 17, 2002 meeting, the Tower Committee recommended approval of this application. This followed the submittal of additional information requested by the Tower Committee to verify that the new location was necessary to fulfill the digital service and coverage requirements as stated by MPT. The Tower Committee states in their conclusion that there are no existing structures to which the State could attach its antennas and provide equivalent DTV coverage to the County as the site at the truck weighing station along I-270, and there is a need for a new tower to provide DTV service to the County residents.

One element of the review was a verification of the absolute difference in ground elevations of the respective sites, which ultimately was shown to be 80 feet, a significant difference which could affect reception.

Another discussion revolved around why the existing tower in Annapolis that currently serves lower Montgomery County is insufficient. Based on new information submitted by MPT, the Tower Committee agreed that even with the planned improvement to the Annapolis tower, it alone would not be sufficient to provide clear reception to all of lower Montgomery County.

The Tower Committee had also requested additional information to verify that Montgomery County's MPT reception and coverage would be substantially improved by the new tower. The State submitted two versions of new RF maps indicating that service, particularly in lower Montgomery County, would be substantially improved with the new tower. The Tower Committee found that these maps clearly indicated that coverage would be improved.

The Tower Committee noted that in looking for a replacement site for the existing Frederick County antenna, it was unfortunate that MPT was constrained by three factors:

1. They were required to use only State property;
2. They had to locate within a limited distance from the existing tower; and,
3. The land in the area chosen (because it met the two other criteria) limited the tower height because of FAA requirements.

The Committee noted that a commercial broadcast station would typically look for a centrally located tower of approximately 1,000 feet in height above average terrain, and if MPT could do that they could cover a much greater area. Consequently, MPT and the State will be creating an under-rated facility that could cost nearly as much as a taller tower, but they appear to be doing the best they can under the State-imposed requirements for location. The Committee concluded that despite its limitations, the coverage at this site will be better than that which could be provided by the Frederick tower or a modified Annapolis tower.

The Tower Committee also questioned the possibility of co-location on the tower. The private carriers stated at a Tower Committee meeting that even though the State claims the tower could provide co-locations, it would most likely not be used because the State's contracting process is so cumbersome.

Tower Committee representatives will be present at the Planning Board meeting to discuss their findings and answer any questions.

Required Findings for Special Exception

The application meets all standards, which are attached in full, with the exception of the setback requirement. However, the setback requirements for telecommunications towers are based on a model of monopole that might be susceptible to falling over. MPT has submitted information (attached) regarding this tower that indicates that it is of the type that is designed, if it should be severely damaged, to collapse "in place" rather than topple over. Therefore, a 445-foot setback should not be necessary for safety.

The notice from the manufacturer states: *"(the) tower will be designed per the TIA/S1A-222-F-1996 Standard. Wind forces calculated in accordance with (this) Standard are conservative and failure of towers designed using the Standard are virtually unheard of. In the very unlikely event of a tower failure, the top 1/3 of the tower would collapse first. In other words, the 'fall radius' of the tower would be about 147' around the tower base. Usually, however, the falling portion of the tower would be hinged to the top of the remaining tower instead of falling to the ground. It is very unlikely the tower would hit any structures which are located outside the radius of 147' around the tower base."*

Given this statement from the manufacturer, and the absence of any structures in close proximity to the proposed tower other than the State-owned weigh station, the staff recommends that this tower be setback a minimum of 150 feet from any property lines. The proposed site for the tower is 180 feet from the nearest property line, and the revised site requested by the Environmental Planning staff is even further from adjacent property lines.

Inherent and Non-Inherent Effects

Section 59-G-1.2.1 of the Zoning Ordinance (Standard for evaluation) provides that:

"A special exception must not be granted absent the findings required by this Article. In making these findings, the Board of Appeals, Hearing Examiner, or District Council, as the case may be, must consider the inherent and non-inherent adverse effects of the use on nearby properties and the general neighborhood at the proposed location, irrespective of adverse effects the use might have if established elsewhere in the zone. Inherent adverse effects are the physical and operational characteristics necessarily associated with the particular use, regardless of its physical size or scale of operations. Inherent adverse effects alone are not a sufficient basis for denial of a special exception. Non-inherent adverse effects are physical and operational characteristics not necessarily associated with the

particular use, or adverse effects created by unusual characteristics of the site. Non-inherent adverse effects, alone or in conjunction with the inherent effects, are a sufficient basis to deny a special exception.”

The proposed use is inherently very tall and visually intrusive. Thus, it would have a significant visual impact wherever placed. The use as proposed has no non-inherent effects other than improving MPT coverage in lower Montgomery County.

Community Concerns

Notices of the Mandatory Referral hearing were mailed to adjoining and nearby property owners and appropriate civic organizations. To date, the staff has received no comments on the proposed use although it is believed that there will be objections raised.

CONCLUSION

Because of the technical infeasibility of other location options, as noted by the Tower Committee, the staff concurs with the Tower Committee's recommendation for **approval** of this tower. While we believe it unfortunate that the involved State agencies did not contact representatives of Montgomery County early in their search process, given the constraints on their search it may be unlikely that they would have found a more acceptable site. Given the height of this use, it would cause significant visual impact wherever it might be located. And if the tower is required, as found by the Tower Committee, the staff believes that the revised site that better meets the County's environmental requirements will be a better location.

JD:ha: g:\judy\mpt report.doc
Attachments

General Conditions

Sec. 59-G-1.21 of the Zoning Ordinance (General Conditions) provides:

- (a) A special exception may be granted when the board, the hearing examiner, or the district council, as the case may be, finds from a preponderance of the evidence of record that the proposed use:

- (1) Is a permissible special exception in the zone.

The use is so allowed in the RDT Zone.

- (2) Complies with the standards and requirements set forth for the use in division 59-G-2.

The use complies with all standards and requirements except that of distance from the property line, and a waiver from that requirement is recommended given the design of the tower.

- (3) Will be consistent with the general plan for the physical development of the district, including any master plan or portion thereof adopted by the Commission.

The Master Plan for the Preservation of Agricultural and Rural Open Space is silent on special exceptions. However, public uses that are intended to serve the public good are inherently consistent with master plans.

- (4) Will be in harmony with the general character of the neighborhood considering population density, design, scale and bulk of any proposed new structures, intensity and character of activity, traffic and parking conditions and number of similar uses.

A use of this nature cannot be in harmony with the character of its surrounding area wherever it is located - it is just too tall. However, when such a structure is required for the public necessity, it is best for it to be located in a rural area with few residences. The structure will be very visible to those in the residences located just to the east along Frederick Road and for those traveling along I-270, but will not impact the overall intensity of activity of this rural area, or its traffic or parking conditions.

- (5) Will not be detrimental to the use, peaceful enjoyment, economic value or development of surrounding properties or the general neighborhood; and will cause no objectionable noise, vibrations, fumes, odors, dust, glare or physical activity.

This use will have a visual impact on the surrounding neighborhood but will not cause objectionable noise, vibrations or other detrimental physical

activity. The visual impact will be no greater here than other locations, and will have less impact than in a more densely populated area.

- (6) Will not, when evaluated in conjunction with existing and approved special exceptions in the neighboring one-family residential area, increase the number, intensity or scope of special exception uses sufficiently to affect the area adversely or alter its predominantly residential nature.

Not applicable, as the immediately surrounding area is not primarily residential in nature. The use, in general, will not alter the general rural/residential character of the surrounding area.

- (7) Will not adversely affect the health, safety, security, morals or general welfare of residents, visitors or workers in the area.

The use will not have such adverse affect on the area or its residents, and may improve the safety of area residents.

- (8) Will be served by adequate public services and facilities including schools, police and fire protection, water, sanitary sewer, public roads, storm drainage and other public facilities.

Existing public facilities are sufficient for the proposed use.

Special Findings for a Telecommunications Facility

Section 59-G-2.43 of the Zoning Ordinance (Public utility buildings, public utility structures, and telecommunication facilities) provides:

- (a) A public utility building or public utility structure, not otherwise permitted may be allowed by special exception. The Board must make the following findings:

- (1) The proposed building or structure at the location selected is necessary for public convenience and service.

The Tower Committee has determined that the proposed MPT broadcasting tower is necessary at the desired location for public convenience, service, and safety.

- (2) The proposed building or structure at the location selected will not endanger the health and safety of workers and residents in the community and will not substantially impair or prove detrimental to neighboring properties.

The use will have a visual impact, but it will not endanger the health and safety of area residents. Due to its height, its impact on the use,

enjoyment, and value of neighboring properties should be no greater at this location than at any other location in the RDT Zone.

- (b) Public utility buildings in any permitted residential zone, shall, whenever practicable, have the exterior appearance of residential buildings and shall have suitable landscaping, screen planting and fencing, wherever deemed necessary by the Board.

Not applicable, as the tower is not proposed in a residential zone.

- (c) Any proposed broadcasting tower shall have a setback of one foot from all property lines for every foot of height of the tower.

The proposed tower is 445 feet high and is set back 180 feet from the property lines on all sides, and thus does not meet this standard. However, the applicant has submitted materials to indicate that this type of lattice antenna is more stable than a monopole and is designed so that it would not fall over. Information submitted by the manufacturer indicates that this type of tower is very unlikely to fall over, and if it should have a failure, only the top 147 feet would be susceptible to falling - and that would in all probability remain hinged to the tower.

Given this information, and the distance from any neighboring homes on adjacent property, the staff recommends that a 150-foot setback for the tower. The proposed location has a 180-foot setback and the recommended site will be even further from any property lines.

- (d) Examples of public utility buildings and structures for which special exceptions are required under this section are buildings and structures for the occupancy, use, support or housing of switching equipment,...or television transmitter towers and stations; telecommunication facilities.

The proposed use is a television transmitter tower.

- (e) The provisions of section 59-G-1.21(a) shall not apply to this subsection. In any residential zone, overhead electrical power and energy transmission and distribution lines carrying in excess of 69,000 volts.

Not applicable for this use.

- (f) In addition to the authority granted by section 59-G-1.22, the Board may attach to any grant of a special exception under this section other conditions that it deem necessary to protect the public health, safety or general welfare.

Recommended conditions are given.

- (g) Petitions for special exception may be filed on project basis.

Not Applicable.

- (h) A petitioner shall be considered an interested person for purposes of filing a request for a special exception if he states in writing under oath that he has made a bona fide effort to obtain a contractual interest in the subject property for a valid consideration without success, and that he intends to continue negotiations to obtain the required interest or in the alternative to file condemnation proceedings should the special exception be granted.

Not Applicable.

- (i) Any telecommunication facility must satisfy the following standards

- (1) The minimum parcel or lot area must be sufficient to accommodate the location requirements for the support structure under paragraph (2), excluding the antenna(s), but not less than the lot area required in the zone. The location requirement is measured from the base of the support structure to the property line. The Board of Appeals may reduce the location requirement to not less than the building setback of the applicable zone if the applicant requests a reduction and evidence indicates a support structure can be located on the property in a less visually unobtrusive location after considering the height of the structure, topography, existing vegetation, adjoining and nearby residential properties, if any and visibility from the street.

The proposed tower is located within the RDT zone which requires a 1-acre minimum lot. The subject site has 22.6 acres, and over 11 acres on the immediately adjoining west side of I-270.

- (2) A support structure must be located as follows:

- a. In agricultural and residential zones, a distance of one foot from property line for every foot of height of the support structure.

The proposed broadcasting tower is 445-feet high, and is to be set back 180 feet from the property lines on all sides. It thus does not meet this standard. However, the applicant has submitted materials to indicate that this type of lattice antenna is more stable than a monopole and is designed so that it would not fall over. The Tower Committee has indicated that this design is safe.

- b. In commercial and industrial zones.

Not applicable.

- (3) A freestanding support structure must be constructed to hold not less than 3 telecommunication carriers.

The proposed tower is designed to hold multiple carriers for state, local, and possibly federal agencies.

- (4) No signs or illumination are permitted in the antennas or support structure unless required by the Federal Communications Commission, the Federal Aviation Administration, or the County.

Antenna or stroboscopic lights are proposed at the top of the tower, as required by the Federal Aviation Administration for a structure of this height.

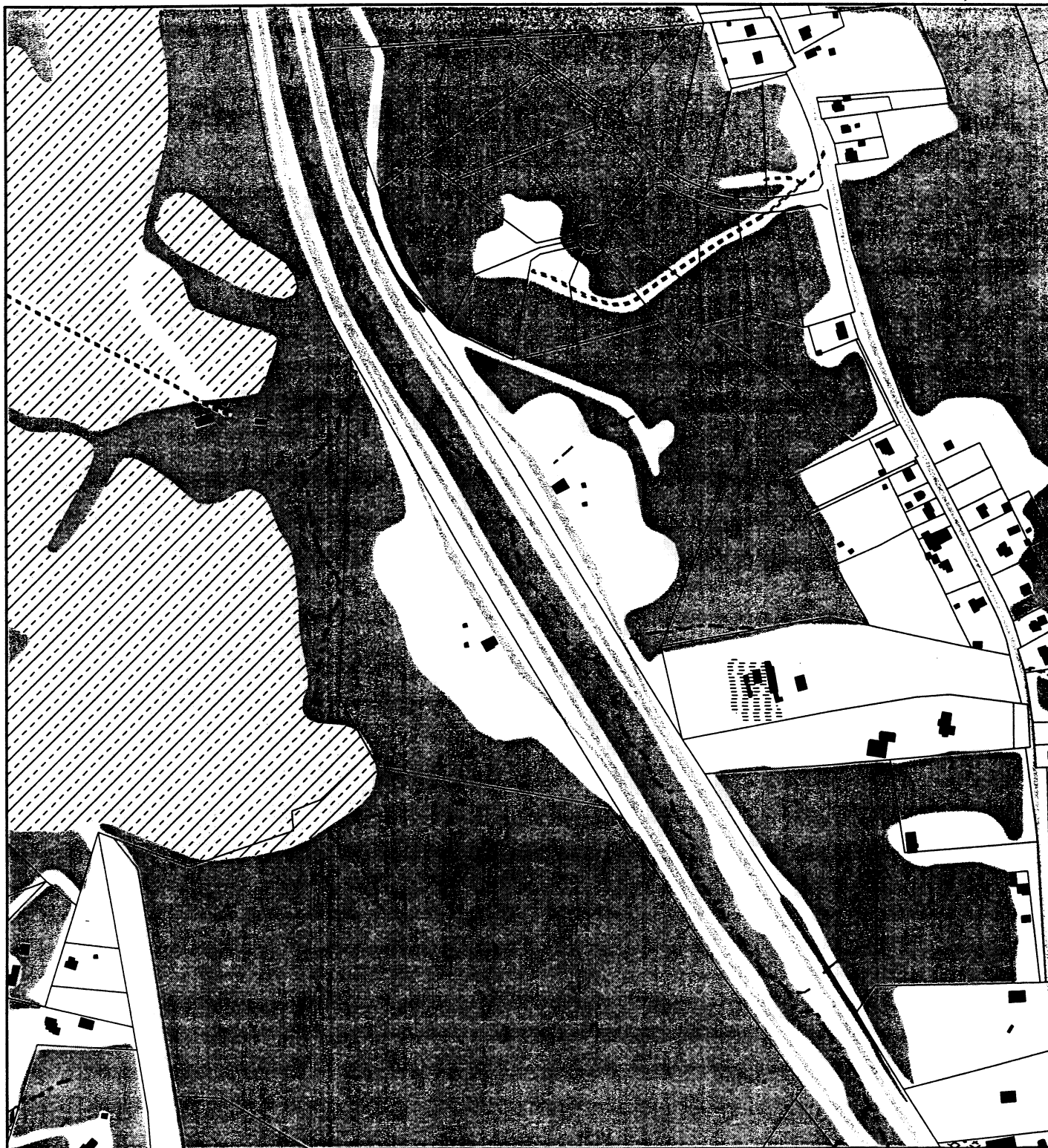
- (5) Every freestanding support structure must be removed at the cost of the applicant when the telecommunication facility is no longer in use by any telecommunication carrier.

The applicant is aware of this requirement.

ATTACHMENT 1

VICINITY MAP FOR

MANADATORY REFERRAL MPT TOWER



Map compiled on June 07, 2002 at 8:45 AM | Site located on base sheet no - 234NW15

NOTICE

The planimetric, property, and topographic information shown on this map is based on copyrighted Map Products from the Montgomery County Department of Park and Planning of the Maryland-National Capital Park and Planning Commission, and may not be copied or reproduced without written permission from M-NCPPC.

Property lines are compiled by adjusting the property lines to topography created from aerial photography and should not be interpreted as actual field surveys. Planimetric features were compiled from 1:14400 scale aerial photography using stereo photogrammetric methods.

This map is created from a variety of data sources, and may not reflect the most current conditions in any one location and may not be completely accurate or up to date. All map features are approximately within five feet of their true location. This map may not be the same as a map of the same area plotted at an earlier time as the data is continuously updated. Use of this map, other than for general planning purposes is not recommended. - Copyright 1998

Key Map



N



Research & Technology Center



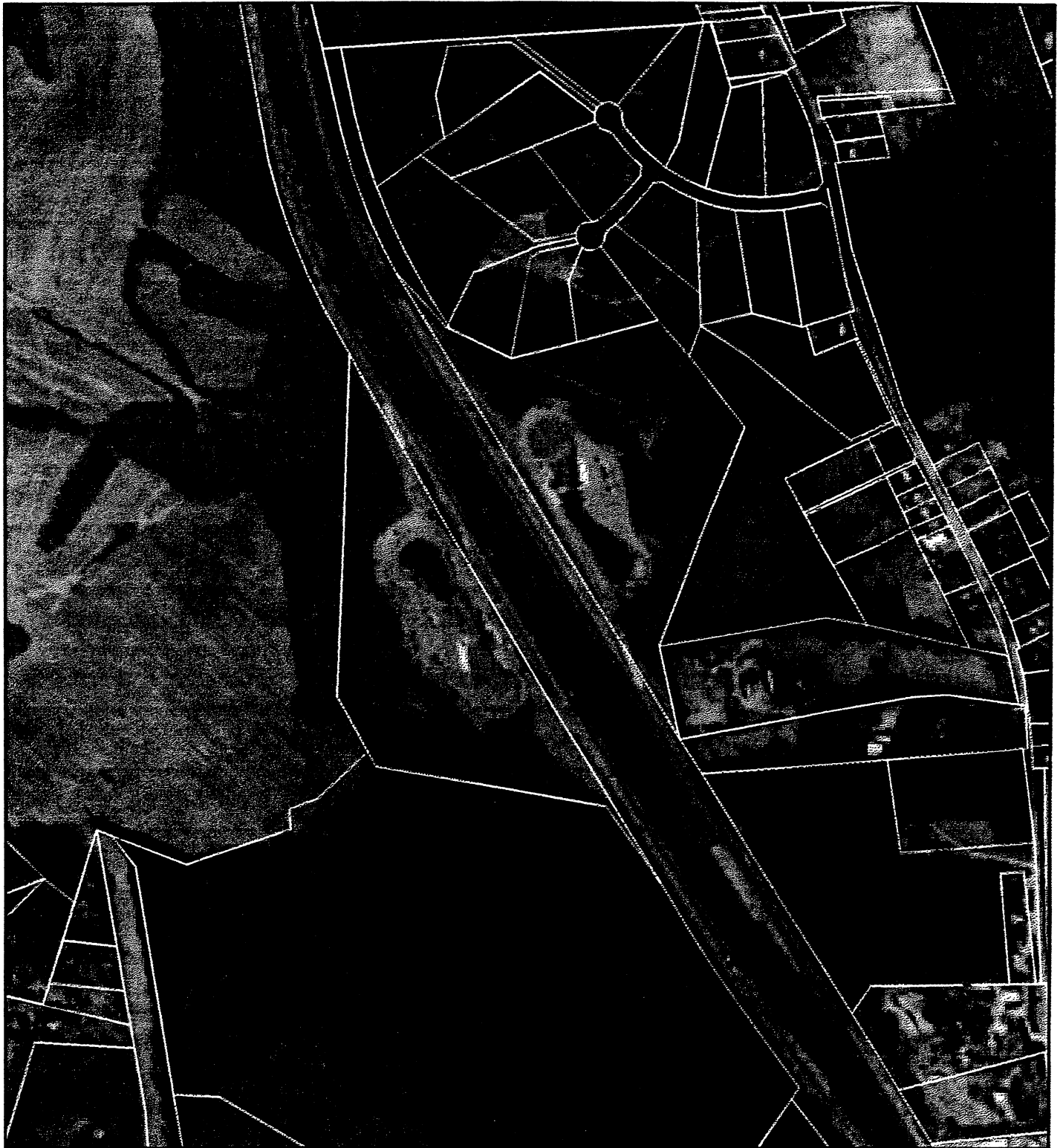
1 : 7200

MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

5787 Georgia Avenue - Silver Spring, Maryland 20910-3760

VICINITY MAP FOR

MANADATORY REFERRAL MPT TOWER



Map compiled on June 07, 2002 at 8:54 AM | Site located on base sheet no - Z24NW15 | Date of Orthophotos - March 1998 | Orthophoto Images Licensed from WARBE LLC.

NOTICE

The planimetric, property and topographic information shown on this map is based on copyrighted Map Products from the Montgomery County Department of Park and Planning of the Maryland-National Capital Park and Planning Commission, and may not be copied or reproduced without written permission from M-NCPPC.

Property lines are compiled by adjusting the property lines to topography created from aerial photography and should not be interpreted as actual field surveys. Planimetric features were compiled from 1:14400 scale aerial photography using stereo photogrammetric methods.

This map is created from a variety of data sources, and may not reflect the most current conditions in any one location and may not be completely accurate or up to date. All map features are approximately within five feet of their true location. This map may not be the same as a map of the same area plotted at an earlier time as the data is continuously updated. Use of this map, other than for general planning purposes is not recommended. - Copyright 1998



Research & Technology Center



1:7200



DEPARTMENT OF HOUSING AND COMMUNITY AFFAIRS

Douglas M. Duncan
County Executive

Elizabeth B. Davison
Director

February 8, 2002

RECEIVED
020215
FEB 13 2002

Mr. Arthur Holmes, Jr.
Chair
M-NCPPC
8787 Georgia Avenue
Silver Spring, Maryland 20910

OFFICE OF THE CHAIRMAN
THE MARYLAND NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

Re: Maryland Department of Budget & Management for Maryland Public Television
TTFCG Application #200109-04 - I-270 Southbound at Truck Weigh Station, Clarksburg

Dear Mr. Holmes:

This is to advise you that the Telecommunications Transmission Facility Coordinating Group (TTFCG) reviewed the subject TTFCG application on January 17, 2002. For your information, I have attached a copy of the material reviewed by the TTFCG, the Tower Coordinator's Recommendation, excerpts from the minutes of the meeting at which the application was reviewed, and a copy of the Record of Action taken by the group.

Should you have any questions regarding this matter or need additional information please feel free to give me a call at 240-777-3724.

Sincerely,

Jane E. Lawton
TTFCG Chairperson

Enclosures

Cc: Gerrit Veenhof, Md-DBM

Re: Consumer Cable TV W/F/K/Holmes-MJ/Law



Division of Consumer Affairs

MINUTES OF TTFCG MEETING

To: Distribution

From: Bob Hunnicutt, Tower Coordinator, Columbia Telecommunications

A meeting of the Telecommunications Transmission Facility Coordinating Group (TTFCG) was held on January 17, 2002. The following people were in attendance:

MEMBERS

| | | |
|------------------|---------|----------------|
| Jane Lawton | OCA | (240) 777-3724 |
| Michael Ma | M-NCPPC | (301) 495-4595 |
| Pat Hanehan | MCPS | (301) 279-3609 |
| Eric Carzon | OMB | (240) 777-2763 |
| Dave Niblock | DPS | (240) 777-6252 |
| Willem Van Aller | DIST | (240) 777-2994 |
| Tracey Williams | WSSC | (301) 206-7171 |
| Rey Junquera | DPWT | (240) 777-6086 |

STAFF

| | | |
|------------------|-----|----------------|
| Amy Rowan | OCA | (240) 777-3684 |
| Margie Williams | OCA | (240) 777-3762 |
| Robert Hunnicutt | CTC | (410) 964-5700 |
| Lee Afflerbach | CTC | (410) 964-5700 |

OTHER ATTENDEES

| | | |
|-------------------|---------------------------------|----------------|
| Lee Jarmon | Nextel | (410) 953-7440 |
| Bill O'Brien | VoiceStream | (443) 570-1032 |
| Steve Weber | VoiceStream | (571) 277-0235 |
| Jennifer Tabeling | Cingular | (410) 712-7835 |
| Denise Page | Cingular | |
| Mike Winberg | Resident | (301) 216-9690 |
| Wendell Jones | MD-DNR | (410) 260-8163 |
| Tom Miller | MD-EMS | (410) 706-3668 |
| Ed Ryan | MD-DBM | (410) 767-4219 |
| Gerrit Veenhof | MD-DBM | (410) 767-6501 |
| Robert Sestili | MPT | (410) 581-4297 |
| Craig Fetzer | MDOT | (410) 747-8590 |
| Miriam DePalmer | MPT | (410) 581-4033 |
| Kirby Storms | MPT | (410) 581-4234 |
| George Hughes | MPT | (410) 581-4024 |
| Steven Schaffer | Schwartz, Woods, Miller for MPT | |
| Susan Singer-Bart | Gazette Newspaper | |
| Judy Daniel | M-NCPPC | |

Discussion Item – TTFCG Website: Jane Lawton announced that a new E-Montgomery TTFCG Website had been established. She distributed information on the site and how to access it. She reported that many people make requests for tower information and this new Website should make it easier and quicker to disseminate information to the public, carriers, and other interested parties.

Action Item: Approval of December 12, 2001 minutes: Pat Hanehan moved the minutes be approved as written. Michael Ma seconded the motion and the minutes were unanimously approved.

Action Item: VoiceStream application to replace two existing antennas with one microwave antenna at 75' and one tri-sectored omni-directional antenna at 94' on a Allegany Power Pole #MD-4697 located at 22520 Gateway Center Drive in Clarksburg (Application #200112-01).

Bob Hunnicutt summarized the application and noted that this was an antenna replacement similar to one the TTFCG recently reviewed for VoiceStream's Westmoreland Circle location. He noted that panel antennas were being replaced with a single omni-directional antenna at the top of a PEPCO pole.

Motion: Willem Van Aller moved the application be recommended. Rey Junquera seconded the motion and it was unanimously approved.

Action Item: VoiceStream application to replace six existing antennas with six new antennas at the same 188' level of an existing 192' lattice tower on the Ferguson Farm located at 14825 Comus Road in Clarksburg (Application #200112-02).

Bob Hunnicutt summarized the application and noted this was simply an antenna replacement at this site.

Jane Lawton asked how far this location was from the application just recommended. Willem Van Aller stated it was about three to four miles south of that location.

Motion: Willem Van Aller moved the application be recommended. Dave Niblock seconded the motion and it was unanimously approved.

Action Item: Maryland Public Television application to construct a new 445' lattice tower on MDOT property located at the truck weigh station off southbound I-270 in Clarksburg (Application #200109-04).

Bob Hunnicutt stated that when last reviewed, the TTFCG had requested additional information from the State, which has since been submitted and reviewed by the Tower Coordinator.

Mr. Hunnicutt said that the State documents originally submitted showed a difference of 30' between the ground elevation of the proposed site in Montgomery County and the ground elevation of the existing site in Frederick County. However, at the first TTFCG review for this application, the State reported that the difference in elevation was actually closer to 80 feet. The TTFCG asked for an explanation for the difference in elevations reported. He stated that in its reply, the State noted that its initial submission was from an MPT Digital Conversion Plan which was for informational purposes only and did not provide exact elevation information. He noted that the State has since provided a letter showing the exact elevation for each site. The Tower Coordinator had verified the elevations with the State's FCC application for the sites and is now satisfied the difference between the existing Frederick site and the proposed Montgomery County site is approximately 80', a significant difference for this siting.

Mr. Hunnicutt said that the TTFCG also asked the State to report how much land it owned at the existing Frederick County site. He stated the State had replied that it owned approximately 2.75 acres in Frederick County. Mr. Hunnicutt stated he had visited the site and confirmed that the surrounding property was comprised of a golf course, residential properties, and properties designated for residential development. He also noted that there was a small wildlife and fish area next to the tower compound.

He distributed photographs of the present site and explained that the existing tower was on the side of a low hill and there was higher elevation between the tower and Montgomery County. He stated that he did not believe that another location within the State's 2.75 acres would provide a better tower location than the site of the existing tower.

Mr. Hunnicutt stated that the third TTFCG request was for more detailed information on Montgomery County coverage from the existing Annapolis transmitter. He said the State had initially submitted RF propagation information which showed that the Annapolis transmitter already adequately served the down-county areas the new tower would cover. During the TTFCG's initial review of the application, the State had provided propagation maps which showed that the coverage, especially in the lower areas of Montgomery County, was significantly better from the proposed Montgomery County site than from the Frederick County site. The TTFCG had asked the State to provide comparable RF analysis for the Annapolis transmitter so that it could compare both locations to see the extent of coverage for Montgomery County from both transmitters.

Mr. Hunnicutt reported that the State had now submitted two versions of new RF maps for the Annapolis transmitter; one at its existing height, and one at a height 50' higher as is proposed by an extension to that location. He stated that the new RF maps submitted showed that the coverage from Annapolis was not as good as previously illustrated and was not as good as the coverage expected from the proposed Montgomery County location.

Lee Afflerbach explained that the initial submission from the State was based on an RF model that is used primarily by the FCC for allocation purposes. He noted that a recent IEEE article, which was

provided in the TTFCG packet, explained that this model is nearly 50 years old and the newer integration model now submitted by the MPT engineering consultant provided a more accurate illustration of the expected coverage. He explained that in the newer models, the calculations from the transmitter are computed piece by piece to each service area point. Mr. Afflerbach noted that if the State had provided this newer information from the start, this matter would not have been an issue. He concurred that the service provided to Montgomery County from the proposed tower along I-270 would provide better coverage than is presently provided from the Annapolis transmitter at either its existing or proposed antenna heights. He added that he was concerned about this application because in locating its antennas at this site, MPT was constrained by several factors, including:

- that they were required to use only State property;
- that they had to locate in the particular vicinity; and
- that the land at this site limited the tower height because of FAA requirements.

He said that a commercial broadcast station would typically look for a centrally located tower of approximately 1,000 feet in height above average terrain (HAAT). He stated that if that was the case for MPT, they could cover a much greater area because the increased height would make a significant difference in the coverage footprint. Consequently, MPT and the State are creating an underrated facility which could cost nearly as much as a taller, more typical television broadcast tower. He concluded, however, that the State appears to be doing the best they can under the circumstances.

Ms. Lawton asked what the difference in coverage between a 1,000 foot tower and a 500 foot tower would mean to MPT's viewers. Mr. Afflerbach stated that the shorter tower would provide a weaker signal to some areas. He added that commercial operators seek to provide better coverage by maximizing the location and height of its tower.

Ms. Lawton asked if the circumstances regarding placement of this tower at this Montgomery County location for DTV purposes makes it a workable siting. Mr. Afflerbach replied that it did not make it unworkable, it was just not as good as should be expected from a commercial broadcast television station. Ms. Lawton asked if Mr. Afflerbach believed that the State would establish a tower at this location for the short term and then look for a new, taller location for improved coverage in the future. Mr. Afflerbach stated that in his opinion, given the funding for these activities by the State, it did not appear that would be the case. Robert Sestili concurred, noting that this site would be the permanent MPT transmitter location for this part of Maryland.

Michael Ma asked why this tower could not be higher than the proposed 500 feet. Mr. Afflerbach stated that the FAA limited the height of the tower due to potential conflicts with air traffic. Mr. Van Aller added that the FAA considers the flight slope pattern on approach to nearby airports and, where necessary, limits tower heights to avoid any conflicts with aircraft.

Mr. Afflerbach stated that given its limitations, the coverage at this site was better than that which could be provided by the Annapolis tower or which is currently provided by the Frederick tower. He stated that he had provided another IEEE article to the TTFCG which explained the origin of the FCC's model initially used to provide information to the TTFCG. He noted that the article points out that the model is from the 1950's and was used to determine licensing for broadcast television at that time. He noted that today, however, when one compares the picture quality that was provided in the 1950's to what is provided today, viewers' expectations are much greater. Today, the comparable picture quality is that of a much sharper, clearer picture more equivalent to a DVD-quality picture.

Dave Niblock added that he had been contacted by the County's Revenue Authority, which was interested in this application because it is located close to the Montgomery County Airpark which the County operates. He asked if the TTFCG had received written confirmation that the FAA had approved this application. Mr. Afflerbach stated that a copy of the application to the FAA was included in the TTFCG packet and the State had verified that the FAA had approved the site but limited the tower height to 500 feet.

A fourth request by the TTFCG was related to questions about the State's leases raised by carriers at the last TTFCG meeting. Mr. Hunnicutt explained that a number of the carriers had reported that even though the State claimed this new tower would provide co-location opportunities for other carriers, it would most likely not be used by carriers for that purpose because the State's contracting process is so cumbersome. The carriers agreed that it would be easier to seek other sites than to deal with the State to co-locate on its towers. Mr. Hunnicutt stated that the TTFCG had requested that the State respond to those comments. He noted that although the State did not provide information in advance of today's meeting, they were prepared to answer questions at this meeting. Mr. Hunnicutt then asked Ed Ryan to respond to this issue.

Mr. Ryan stated that the State's contracting process was created by Maryland law which required specific time periods for the State to approve use of any State property, building, or tower. He said the process requires advertising for a certain period and a review by a Legislative Committee. He added that the agreement, once negotiated, had to be reviewed and approved by the State Board of Public Works. He noted that he understood that the time periods for this process as presently prescribed in law were problematic for the carriers. He said that the typical processing time for a State agreement for a cell carrier co-location was 8 months from start to finish. But, he noted despite the long process, they still had a number of carriers which had attached to State facilities.

Jane Lawton asked how many applicants had gone through that process. Mr. Ryan replied that approximately 30-40 agreements had been reviewed from 7 different carriers. Ms. Lawton asked if there had been any attempt to make changes to simplify the process. Mr. Ryan stated there had been several unsuccessful attempts in the past but that they would try again this year, particularly for cases of co-locating on existing towers. He stated they would also try to seek a blanket approval from the Board of Public Works for agreements up to \$200,000. He noted that currently, regardless of its

nature, any lease must go through this approval process.

Pat Hanehan asked how much the State was seeking from carriers for lease agreements. Mr. Ryan replied that there was a formula used to compute the lease amount based on the type of carrier, the different types and numbers of antennas, the traffic density, and the related ground space needed for equipment. In response to questions regarding the State's monopole on Montrose Road, Craig Fetzer stated that the average rent at that site was approximately \$2,800 per month. Mr. Fetzer noted that in considering each lease, the State had to consider other uses in the public highway area and the impact on other existing utilities. He stated they were trying to streamline the process, especially for attaching to existing structures.

Ms. Lawton offered that the TTFCG is available to assist the State in developing creative solutions to streamline its process, and noted that the process in Montgomery County was very effective and successful.

Mr. Van Aller noted that communications between the State and the County could also be improved as well, and cited recent work to approve extensions to several towers in the County as an example of the problem. He said that the State attorneys worked with the County attorney but that they did not communicate with the engineers or with the TTFCG regarding those tower height extensions. Mr. Ryan noted that Mr. Van Aller was referring to the Memos of Understanding that were negotiated between the County and the State, and agreed that was a communication primarily between the attorneys and not the engineers or the users of the tower facilities. Mr. Ryan stated he would be happy to work on improving communications if the County could provide a point of contact. Ms. Lawton stated that the Tower Coordinator should be the point of contact for the TTFCG.

Lee Jarmon stated that the biggest problem Nextel has had with the State was that there was a very short notice required to vacate the tower. This put Nextel at considerable risk in attaching to State facilities. Mr. Ryan replied that the normal vacate requirement for State agreements was 180 days. He added that changes to the present process would have to be made by the State Legislature.

Michael Ma asked if the Park Police would have to go through the same process if they wanted to place their antennas on the State's tower. Mr. Ryan replied that there is no charge for local governments or law enforcement agencies to attach to State facilities and the only requirement was an inter-governmental agreement.

Ms. Lawton asked if any of the other members or visitors in attendance had any questions regarding the State's application. There was no response from any of the attendees. Ms. Lawton summarized the review of this application and noted that the TTFCG and the Tower Coordinator had thoroughly reviewed the technical aspects of this application and had examined possibilities for co-location in order to minimize any adverse impact on the community. She noted that the Tower Coordinator now recommended this application and that it would next go to Mandatory Referral, where the Board

would hear public comments and address the land use issues. She asked if a date had been set for the Mandatory Referral hearing. Judy Daniel stated that no date had been set as they were still waiting for the State to provide a complete site plan. Ms. Lawton asked what notification would be provided by the M-NCPPC about the Mandatory Referral hearing. Ms. Daniel replied that there would be public notice but she was not sure of the extent of that notice.

Motion: Eric Carzon moved the application be recommended. Pat Hanehan seconded the motion and it was approved with Willem Van Aller abstaining.

Discussion Item - Kenwood Country Club Tower Capacity follow-up: Mr. Hunnicutt reminded the group that they had asked him to find out how many carriers the new County tower at Kenwood County Club would be able to accommodate. He stated that the tower builder had advised him that 5 additional carriers could be accommodated on the lattice tower once it was constructed. This would be in addition to those carriers already slated to attach to the new tower from their current location on the old tower at this site.

The next meeting of the TTFCG is scheduled for Wednesday, February 13, 2002 at 2:00 p.m. in the 2nd floor conference room #225 of the COB.





UNIVERSAL TOWER, INC.

P.O. BOX 40 SEBREE, KENTUCKY 42455

TEL (270)835-2525
FAX (270)835-9996

June 5, 2002

RE: 440' Self Supporting Tower For State of Maryland

Mr. Kenny Anderson
United Riggers, Inc.,

This letter is to confirm that the above mentioned tower will be designed per the TIA/EIA-222-F-1996 Standard. Wind forces calculated in accordance with the TIA/EIA-222-F Standard are conservative and failure of towers designed using the standard are virtually unheard of. In the very unlikely event of a tower failure, the top 1/3 of the tower would collapse first. In other words, the "fall radius" of the tower would be about 147' around the tower base. Usually, however, the falling portion of the tower would be hinged to the top of the remaining tower instead of falling to the ground. It is very unlikely the tower would hit any structures which are located outside the radius of 147' around the tower base.

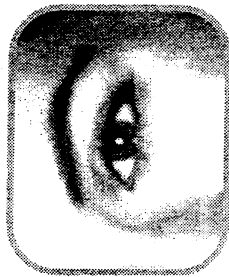
If you have any questions regarding this matter, please feel free to contact Universal Tower, Inc.

Sincerely,

Chander Nangia
Chander Nangia, P.E.
6/5/2002



Sure, we'll carry the torch into the digital age.
We've never been afraid of getting burned.



Here at Maryland Public Television we don't only do things with our heads, we also do them with our hearts. So to us, good television isn't television that scores record numbers during sweeps or brings in six digit advertising revenue. Good television is television that helps people learn, laugh, grow, participate, and jump up and down every once in a while. It's television that helps to build communities and challenge minds. We've worked hard for 30 years with those goals in mind. Now, we're raising the bar even higher. The new mantra around here is "digital."



The hardware we'll need to make the changeover is either already at our Owings Mills studios or on its way. What's next is creating the programming, which has always been the heart and soul of this station. We plan on jumping into the digital age with all we have because we see it as an unprecedented

opportunity to transform new technology into very real benefits for our viewers. Digital is going to allow us to do multicasting. We'll be able to broadcast different programs simultaneously, thereby satisfying a variety of audiences. The new technology is also going to allow us to truly marry your television with the Internet. If you like what you're watching, you'll be able to dive as deeply into the subject as you wish. Then there's the picture quality. It's going to be beautiful. No, we're not the only station on your remote that will be broadcasting digitally. All stations will be. But we may very well be the only station that will provide programming that rises above and truly enlightens. We're proud to carry the torch into the new digital age. After all, who better than Maryland Public Television to lead the evolution?



M.P.T. THIS IS BIGGER THAN TELEVISION.

WHAT'S THE FUTURE? A COMBINATION TV AND COMPUTER?

Could be—the two are definitely getting closer. But who really knows? Every new technology brings unexpected benefits. We saw computers coming, but not the rapid growth of the Internet. We see digital television coming, but not...who knows what?

We'll all just have to stay tuned and find out.

TO LEARN MORE...

For more information on the benefits coming your way (and ours, too) with the advent of digital broadcasting, please visit the MPT web site (www.mpt.org) and click on "Inside MPT". Then simply click on "MPT in the Digital Age" to read the full story.

A FINAL WORD ABOUT THE DIGITAL TRANSITION ON THE NATIONAL LEVEL.

As public broadcasters, we're hopeful that all broadcasters will use the digital spectrum to ensure that Americans have access to high-quality educational services and programming in the digital era. This educational mission has certainly been the guiding principle for *public* television since its establishment.

Where those digital services and programming are concerned, MPT is in a special position. We've been selected as a pilot station to develop a national model for digital broadcasting service and business opportunities by our industry group, America's Public Television Stations (APTS) with funding by a Ford Foundation planning grant. The APTS project in which we're participating is designed specifically to assist public stations in developing prototype business and service models so that public TV stations everywhere can strengthen their own infrastructures to position themselves to create public interest content in the digital era.

WE HOPE THIS LOOK AT

THE COMING DIGITAL ENVIRONMENT

WILL MAKE YOU FEEL A BIT MORE INFORMED ABOUT— AND EXCITED BY — THE CHANGES HEADED YOUR WAY.

Digital TV: It's almost here

A brief rundown of
what digital TV is
and the benefits
it will bring

| MPT CHANNELS | |
|-----------------------|----------------------|
| ANNAPOLIS 22 WMPT | OAKLAND 36 WGPT |
| SALISBURY 28 WCPB | FREDERICK 62 WFPT |
| HAGERSTOWN 31 WWPB | BALTIMORE 67 WMPB |

Explore Maryland Public Television online at our web site: <http://www.mpt.org>. Have a pat on the back, a concern, or a suggestion for MPT? Why not e-mail us at comments@mpt.org and let us hear from you!

Viewer Services

11767 Owings Mills Blvd.†

Owings Mills, MD 21117-1499

(410) 581-4097

e-mail: viewerservices@mpt.org

 Maryland
Public
Television

program you're watching. You can get more information on the soprano and tenor singing their hearts out on *Great Performances* ... obtain a transcript of a public affairs program ... learn about a company or foundation which is underwriting a PBS program — in fact, you can settle an argument instantly by pulling up data or statistics or names while a program is being broadcast. Want to print out the data? You can even download the on-TV-screen data to your PC!

- **Interactivity** is a word you've already heard in such contexts as museum exhibits and computers. In the context of television, it means a "reverse communications channel" such as a telephone or cable modem. With that kind of channel in your set, you could enjoy datacasting programs that include interactive Web links, e-mail, online ordering, or instant opinion polls. You might even be able to play along with your favorite game show.

SOUNDS LIKE I'M GOING TO HAVE TO BUY A NEW SET. You are—but not right away. Although the federal mandate requires that all television broadcasters be ready for digital transmission by 2003, there will be a transition during which both digital and analog signals will be allowed. Currently, the plan is that in 2006 the government will reclaim the analog spectrum, and the industry will become entirely digital. You'll still be able to use your present TV set for a while by using a set-top converter box, but eventually you'll have to get a new digital TV set.

SOUNDS LIKE MPT IS GOING TO HAVE TO BUY SOME EQUIPMENT, TOO.

We are indeed—approximately \$40 million worth! That's the estimate of the cost of changing over six transmitters, towers, and antennas spread out from Oakland to Salisbury, master control systems at our headquarters facility, and cameras, editing suites, and other production equipment. Towers must be modified or replaced because digital antennas have different requirements for tower strength and height than do analog antennas, and, in fact, MPT and other broadcasters will be required to send out both analog and digital signals for several years before we all turn back our analog channels to the federal government.

And your TV set will look different, too. Digital TV calls for wider screens than does analog, and so you'll see a new proportion or ratio on a digital set. Analog screens need four inches of width to accommodate three inches of height. The new digital standard has a 16 x 9 ratio — a longer, thinner rectangle resembling a cinema screen — so that viewers can see more horizontal picture information. All in all, the new shape better matches the capability of the human eye to take in visual information.

There is one drawback. Flickers and snow often mean there's something wrong with the analog transmission. When digital transmission has problems, your set simply goes black and silent. It's all or nothing.

AND SOUND DIFFERENT?


Absolutely. What you're getting is digital sound played on a high-fidelity receiver. The transmission reproduces the quality of the sound at its source, just as a compact disk does.

ANYTHING ELSE DIFFERENT?

New capabilities like multicasting, datacasting, and interactivity: Here's what all that means:

- **Multicasting** is the ability to send multiple channels of programming simultaneously in the same signal. This means that broadcasters will have the option to transmit one program or several programs in the same digital signal. In fact, we can direct these simultaneous programs to different places (such as schools, libraries, or workplaces). Imagine an MPT children's channel, a business or public affairs channel, an arts or cultural channel — and you see how multicasting affords more program choices. As is said so often these days in public television, multicasting is a great example of how our technological tools are catching up with our mission to educate, engage, and entertain our viewers.

- **Datacasting** sends supporting information along with the program on the screen. Click a button, and your TV screen will "split" into sections. You'll see the TV picture but along with it some boxes or icons on which you can click to see information related to the



Digital TV is going to bring a range of new benefits and opportunities to American broadcasting—and it's going to bring them soon. The United States government has required all television stations to change over to digital transmission in the next few years. *Commercial* stations are making the move now and will have completed it in 2002. All *public* television stations must make it by 2003, and MPT along with some others has begun the transition.

MPT has already begun to acquire digital transmission and production equipment—an enormous job, since we have to replace virtually everything we've accumulated over 30 years, from transmission towers to cameras. Who's paying for it? The State of Maryland, the federal government, and our own funds.

WHAT IS THE DIFFERENCE BETWEEN DIGITAL TV

AND WHAT WE HAVE NOW?

Today's broadcasts use an analog signal, which is made up of sound waves. Digital broadcasts use a signal made up of 1s and 0s (in other words, digits) arranged in a particular order. Your digital TV receiver reads the patterns of 1s and 0s and converts them into images and sounds.

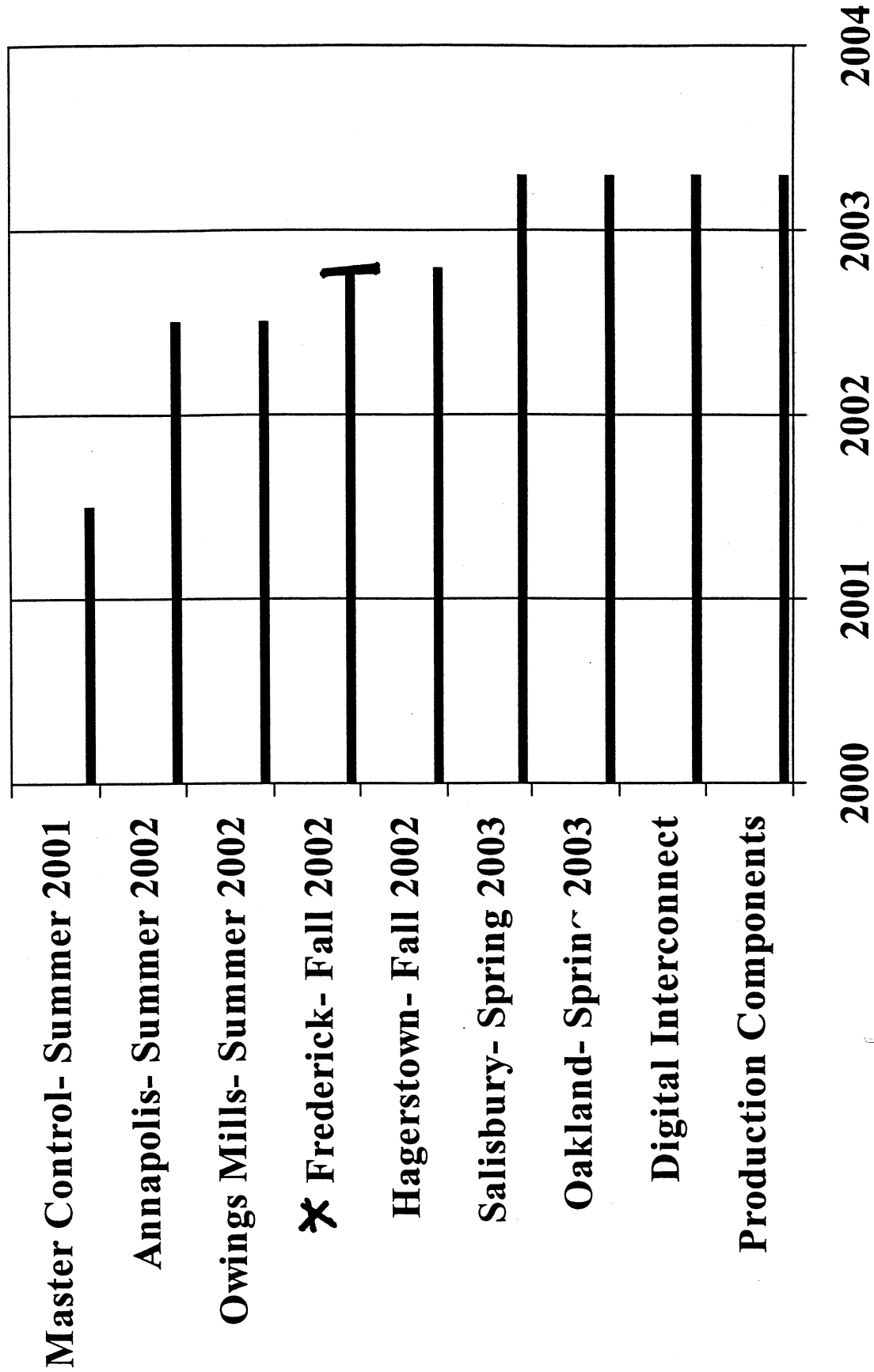
If you think that sounds like the way a computer processes data or a compact disk processes sound—you're right.

WILL DIGITAL TV LOOK DIFFERENT?

Not just different: better!

The image on your screen will be sharper and clearer. Fast, complex action such as that seen in some of our wildlife programs, concerts, or dance presentations will be easier to follow because the picture has better definition. There will be no more flickering screens and no more "snow" because the signal carries so much more data to your set.

Digital Conversion Timetable



Updated- September 2001