STAFF RECOMMENDATION

NWitherell

NCPC File No. 6392

SLOVAK CHANCERY
Installation of VSAT System Antenna Dish (receiving and transmitting)
Preliminary and Final Building Plans
International Chancery Center, Washington, DC

Submission by the U.S. Department of State

September 25, 2003

Abstract

The Department of State has submitted, on behalf of the Slovak Republic, a proposal to install a VSAT System Antenna Dish (receiving and transmitting) on its chancery in the International Chancery Center in Washington, DC. The antenna dish will be installed on the roof of the building, where it will be hidden from view by the high parapet wall of the chancery. The satellite dish, eight feet (2.4 meters) in diameter, will communicate with the Ministry of Foreign Affairs in the Slovak Republic. It will be the only antenna on the roof of the chancery. The proposed installation of the antenna dish has been designed and vetted by engineers for its physical stability and for its Radio Frequency (RF) Standards. The VSAT system is a microwave system that does not emit spillover radiation like cellular systems because it is narrowly directed upward toward an orbiting satellite. Furthermore, the chancery roof is not accessible to other than emergency personnel. The antenna dish is well sited and takes advantage of the roof condition and design of the chancery.

Authority

Approval of preliminary and final building plans pursuant to Public Law 90-553.

Executive Director's Recommendation

The Commission **approves** the preliminary and final building plans, as shown on NCPC Map File No. 72.10(64.10) 41244.

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BACKGROUND AND STAFF EVALUATION

PROJECT DESCRIPTION

The Slovak Chancery is located in the International Chancery Center, on International Court adjacent to the chanceries of Egypt and Austria. The Department of State (DOS), on behalf of the Slovak Republic, has submitted an application for the installation of an antenna dish that is 2.4 meters (eight feet) in diameter on the roof of the Slovak Chancery. The antenna dish is part of the VSAT System, which uses microwave technology, and will transmit and receive messages from the Ministry of Foreign Affairs in the Slovak Republic.

The antenna dish will be mounted on a two-meter pole that will be bolted to the concrete slab of the roof. The pole will also be bolted to the inside wall of the roof parapet at four points. The parapet wall is four meters in height. The antenna dish will be completely hidden from public view by the height of the parapet wall, which exceeds the extent of the dish antenna.

EVALUATION

The installation of the proposed antenna dish meets the requirements of the Development Controls and is consistent with the Master Plan for the International Chancery Center.

The antenna dish is ideally located on the chancery building, since it is hidden from public view by the pronounced raised parapet roof of the chancery, which is taller than the height of the dish antenna on its pole. There will be no visual effects from the installation of the antenna.

The proposed antenna meets all applicable health hazard protection standards. The applicant's submission verifies the criteria developed by the International Committee on Non-ionizing Radiation Protection (ICNIRP), the European body responsible for setting radio frequency (RF) standards. This body's standards are similar to the ANSI/IEEE recommendations used by the Federal Communication Commission (FCC). The proposed antenna will communicate by microwave signals to and from satellites in orbit. The beams used for transmitting microwave earth-to-satellite signals are concentrated and narrowly directed, with no RF spillover due to the inclined angle of the antenna toward an orbiting satellite. Nevertheless, the antenna is being installed on a roof that is not accessible to the public or to chancery employees other than emergency personnel. An operating license, at an assigned radio frequency, will be secured from the FCC.

COORDINATION

<u>Coordinating Committee</u>

The Coordinating Committee reviewed the proposal on September 10, 2003. The Committee forwarded the proposal to the Commission with the statement that the project had been coordinated with all agencies participating. The participating agencies were NCPC; the District of Columbia Office of Planning, Fire Department, Department of Housing and Community

Development, and Department of Transportation; the General Services Administration; and the Washington Metropolitan Area Transit Authority.

CONFORMANCE

National Historic Preservation Act

The International Center is not listed in the National Register of Historic Places and there are no nearby National Register-listed properties that would be affected by the proposal. The Department of State has no further responsibilities under Section 106 of the NHPA.

National Environmental Policy Act

Pursuant to the regulations implementing the National Environmental Policy Act (NEPA), the Department of State has determined that the proposed project plans are categorically excluded pursuant to the Department's NEPA review procedures. An environmental assessment (EA) was developed in 1989 to evaluate the effects of proposed antennas at the International Center. The Department has reviewed the submitted antenna in the context of that EA and found that no extraordinary environmental factors or community issues are affected by the submitted proposal that are not already addressed by the 1989 NEPA document.

The Commission staff has completed a review of the submitted antenna radio frequency (RF) information. Ground-based antennas used for satellite-earth communications typically are parabolic "dish" antennas, some as large as ten meters (33 feet) or more in diameter. Generally, they are used to transmit ("uplinks") or receive ("downlinks") microwave signals to or from satellites in orbit around the earth. Microwaves are very short waves in the upper range of the radio spectrum used mostly for point-to-point communications systems handling all types of information, e.g., voice, data, facsimiles, and video, in either an analog or digital format.

The proposed antenna, an eight-foot dish, operates at a frequency range of 3.6 to 4.2 gigahertz. Since satellite-earth station antennas are directed toward satellites above the earth, transmitted signals point skyward at various angles of inclination, depending on the particular satellite being used. Suitable space and strength is normally required to hold the dish and line of sight with the satellite. Additionally, due to the longer distances involved, power levels used to transmit signals are relatively large when compared, for example, to those used by the microwave point-to-point surface antennas. However, the beams used for transmitting earth-to-satellite signals are concentrated and highly directional, similar to the beam from a flashlight.

The submitted antenna would have power outputs in the range of 5 to 20 Watts. The role of the transmit amplifier associated with the antenna is to provide a sufficiently powerful signal that will traverse the satellite and arrive back on earth to be reliably recovered by the receiver. For the most common communications choices, a solid-state power amplifier (SSPA) is utilized. An SSPA will typically be sealed against the elements and mounted outside, on the antenna.

In the submitted project, no public access to the vicinity of the dish location or power amplifier can be achieved. Public access is normally restricted at a station site where exposure levels

might approach safety limits. The amplifier operational characteristics meet all Federal Communication Commission (FCC) standards for this electronic component. Embassy personnel control all embassy roof access and no unauthorized person would be able to be present on the roof during antenna operation.

The project data indicates the Commission submission criteria have been accomplished and documented as required. The submission verifies the criteria developed by the International Committee on Non-ionizing Radiation Protection (ICNIRP) (European RF standards setting body) are adhered to. The ICNIRP guidelines are similar to the 1992 ANSI/IEEE recommendations that are observed by the FCC health effect guidelines. The installation firm that would accomplish the antenna construction work certifies the project meets all applicable RF health hazard protection standards. As noted, no RF spillover would be present due to the inclined angle of the antenna toward the sky and the concentrated focus of the upward signal. Downlink signals are diverse and (with low power) much weaker, having no health hazard effect. Study measurements have shown that ground-level power densities due to microwave directional signals are normally a thousand times or more below recommended safety limits.[1]

The management company providing the operational support to the Embassy would secure an operating license, at an assigned radio frequency, from the Federal Communications Commission.

Staff review concludes that the submitted antenna installation complies with all Commission requirements regarding RF effects and that the proposed facilities protect the health and welfare of the public from potential adverse biological effects of the proposed transmitting antenna.

Comprehensive Plan

The Slovak Chancery is located in the International Chancery Center and is subject to the Center's Developments Controls and Master Plan. The proposed antenna installation is consistent with both. The antenna, which will communicate solely with the Ministry of Foreign Affairs of the Slovak Republic, is critical to and consistent with the mission of the chancery. The antenna will be completely hidden from view by the high parapet wall of the chancery roof.

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[1] Petersen, R.C., "Electromagnetic Radiation from Selected Telecommunications Systems." *Proceedings IEEE*, Vol. 68, No. 1, p. 21-24 (1998).