



OFFICE OF  
**INSPECTOR GENERAL**  
U.S. DEPARTMENT OF THE INTERIOR



# **U.S. DEPARTMENT OF THE INTERIOR'S VIDEO TELECONFERENCING USAGE**



OFFICE OF  
**INSPECTOR GENERAL**  
U.S. DEPARTMENT OF THE INTERIOR

**DEC 20 2011**

Memorandum

To: Rhea Suh  
Assistant Secretary for Policy, Management and Budget

From: Mary L. Kendall *Mary L. Kendall*  
Acting Inspector General

Subject: Final Evaluation Report – U.S. Department of the Interior’s Video  
Teleconferencing Usage  
Report No. WR-EV-MOA-0004-2010

This memorandum transmits the results of our evaluation of the U.S. Department of the Interior’s (Department) use of video teleconferencing (VTC). We catalogued all of the Department’s VTC sites and equipment and identified opportunities for the Department to achieve significant savings on travel costs through the increased use of VTC, while also advancing its sustainability goal of helping to reduce greenhouse gas emissions. We include five recommendations in our report that, if implemented, would serve to help maximize the use of VTC and save the Department millions of dollars annually.

Based on the Department’s September 30, 2011 response to the draft report, we consider all five recommendations to be resolved but not implemented. We will refer these recommendations to your office, the Office of Policy, Management and Budget (PMB), to track implementation.

The legislation, as amended, creating the Office of Inspector General requires that we report to Congress semiannually on all audit report issues, actions taken to implement our recommendations, and recommendations that have not been implemented.

A response to this report is not required. We request, however, that the Department provide PMB with additional information regarding its specific plans to implement Recommendation 5. If you have any questions regarding this memorandum or the subject report, please do not hesitate to contact me at 202-208-5745.

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## Results in Brief

The Department of the Interior (Department) has the opportunity to save millions of dollars in annual travel expenses while also making progress toward its environmental sustainability goal of reducing greenhouse gas emissions by increasing the use of its video teleconferencing (VTC) equipment.

The Department has 315 VTC endpoints located throughout the nation, but for a variety of reasons the equipment is not being used to its full potential. The Department has no policies on the use of VTC as a viable alternative to travel or that require compatibility of equipment among the VTC endpoints. In addition, employees have cited negative experiences using older VTC equipment, an absence of knowledge within the Department on the availability of VTC, and low motivation for using VTC as reasons the equipment is not being used to its full potential.

In this report, we offer recommendations to help the Department increase the use of VTC equipment and achieve efficiencies through the strategic placement of VTC equipment. The Department's increased use of VTC could potentially translate to significant savings in travel costs and would advance the Department's goal of reducing greenhouse gas emissions.

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# Introduction

## Objective

Our objective was to catalog all U.S. Department of the Interior (Department) video teleconferencing (VTC) sites and equipment and determine the potential cost efficiencies video conferencing might provide. (See Appendix 1 for Scope and Methodology.) This evaluation report highlights information on making better use of the Department's VTC equipment by answering the following four questions:

1. Where are the Department's VTC sites, or endpoints, located?
2. What strategy can the Department employ when determining potential locations for VTC endpoints?
3. What are the hurdles in realizing the full potential of VTC technology?
4. What are the potential benefits associated with increased VTC use?

## Background

A VTC is a face-to-face communication between two or more groups of people at different locations using video cameras, monitors, and a network, such as the Internet. This type of conferencing can reduce travel when used for meetings, training sessions, or interviews. Further, VTC has the potential to increase participation of key staff and expedite decision making processes by allowing employees in various locations to gather quickly for face-to-face communication without the cost and time associated with travel.

In the face of the economic downturn, private sector companies today are using VTC technology to help cut travel costs associated with training or meetings. The less obvious benefit from using VTC is the decrease in downtime related to employees waiting in airports and flying on airplanes. In addition, video conferencing promotes business continuity. For example, VTC can be used in circumstances when air travel is discouraged or interrupted. Recent examples include the 2009 H1N1 pandemic, and the 2010 and 2011 volcanic ash cloud incidents in Iceland. Other benefits from VTC include improving employee morale for those who travel often to meet with geographically distant colleagues. VTC can also help support green initiatives and advance efforts to reduce greenhouse gas emissions.



Figure 1. Bureau of Land Management's video teleconferencing site at the Main Interior Building in Washington, DC. (OIG photo.)

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# Findings

## Where are the Department’s VTC Sites, or Endpoints, Located?

Department offices and bureaus have a combined total of 315 video conferencing endpoints<sup>1</sup> located throughout the nation (see Appendices 2 and 8). The cost to purchase this VTC technology was an estimated \$5 million.<sup>2</sup> Several cities throughout the country have a number of Department-owned VTC endpoints available for use, as shown in Figure 2.

**Cities with the Most VTC Endpoints**

| Location              | Number of VTC Endpoints |
|-----------------------|-------------------------|
| Denver & Lakewood, CO | 30                      |
| Anchorage, AK         | 26                      |
| Washington, DC        | 21                      |

Figure 2. Table displays cities with the highest number of VTC endpoints and how many endpoints in that city.

The number of VTC endpoints varies by bureau and office; the National Park Service has the most with 103 endpoints and the Office of Surface Mining has the least, with no endpoint as of April 2010 (see Appendix 2).

## What Strategy Can the Department Employ When Determining Potential Locations for VTC Endpoints?

Greater use of VTC could result if the Department’s most frequent flight departure and destination cities were considered when determining locations for VTC endpoints. For example, of the \$42.4 million the Department spent on travel in Fiscal Year (FY) 2009 involving up to 2 nights of overnight lodging, \$15.4 million went for 31,222 ticketed flights and \$27.0 million for non-airfare travel costs. We grouped the 31,222 flights by city pairs—origin and final destination points of a travel itinerary—and segregated the top 25 most-flown city pairs, ranking them by total cost (see Appendix 4).

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<sup>1</sup> A VTC endpoint is the human interface to the overall VTC system. It is the device or application at the end of the wire where the electronic conference and human interaction occurs. A VTC endpoint is also known as a video teleconferencing unit or VTU and VTC/video end instrument or EI.

<sup>2</sup> The total estimated \$5 million purchase cost and 315 VTC endpoints were obtained as a result of a data call to the various Department offices and bureaus. Data provided by Department bureau or office as of April 19, 2010.

The Department could reduce travel expenditures by adding or moving VTC equipment to office locations that are common departure and destination points for meetings or training.<sup>3</sup> For example, the city pair of Reno, NV, and Las Vegas, NV, is costly and frequently flown. Since both cities have only one VTC endpoint, increasing the number of VTC endpoints in these cities would enhance video conferencing opportunities for employees flying to and from the Reno and Las Vegas area.

Five other cities that have only one VTC endpoint and could be considered for additional equipment are: Bismarck, ND; Boston, MA; Juneau, AK; Minneapolis, MN; and San Diego, CA. These cities are departure or destination points listed among the top 25 most costly flights. We also noted that two cities—Barrow, AK, and New Orleans, LA—were ranked among the top 25 most expensive flights but did not have VTC endpoints. Moving VTC units to these locations or to an appropriate Department office in close proximity to these locations, such as a nearby park unit or field office has the potential for cost savings.

Figure 3 depicts the general location of the Department's 315 video conferencing endpoints, the top 25 city pairs, as well as the travel expenditures and number of trips flown for the top 5 city pairs in FY 2009. The total number of flights in FY 2009 among the 25 pairs was 8,204. The total travel expenditures for these flights was approximately \$6.9 million.

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<sup>3</sup> According to a VTC technology retailer, a basic VTC system is about \$6,000. Quality, components, and system capability requirements can vary resulting in higher pricing. Most VTC systems currently owned within the Department were purchased in the range of \$14,000 to \$37,000. Some systems were purchased for as much as \$60,000 to \$115,000.



## What are the Hurdles in Realizing the Full Potential of VTC Technology?

### No VTC-Use Policy

The Department does not have written policy on the use of VTC as a viable option over travel. The development and implementation of such a policy, combined with heightened awareness of VTC's benefits, would create the opportunity for this communication technology to achieve its greater potential. In addition, use by and support from the Department's senior leadership of VTC technology would emphasize the cost savings and the environmental benefits.



Figure 4. National Business Center's video teleconferencing site at the Main Interior Building in Washington, DC. OIG photo.

### Equipment Compatibility and Video Bridging

The complete benefits of VTC can be realized when Department bureaus and offices are able to connect with one another's equipment. Department and bureau officials told us that no written policy requires that VTC equipment be both compatible and interconnected throughout the Department. Without a comprehensive policy and strategic plan, the Department will have difficulty meeting increasing demands for information and connectivity. The Department

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offices and bureaus are already considered a part of the “DOI team,” so increased interconnectivity would serve to support the team concept and spur much-needed bureau coordination and equipment compatibility, boost employee engagement with VTC, and improve overall internal communications.<sup>4</sup>

Video conferencing connectivity within the Department is provided through two underlying networks: Internet Protocol (IP)<sup>5</sup> and Integrated Services Digital Network (ISDN).<sup>6</sup> According to some Department officials, the advantage of the IP network is that it tends to be less expensive to operate and affords better picture quality, but the video connection is generally less reliable than ISDN. The type of network used varies among the Department offices and bureaus. Because IP and ISDN networks are not compatible, interconnectivity between offices and bureaus throughout the Department is not possible without some type of video bridging<sup>7</sup> technology. During our review, we noted that video bridging technology, which can be costly, is not employed at many offices and bureaus. In bureaus where only IP or ISDN are available, but not both, video bridging capability is unnecessary to meet intra-bureau communication needs. The Bureau of Reclamation (USBR), the National Park Service (NPS), and U.S. Geological Survey (USGS), however, operate their VTC equipment on both IP and ISDN and have purchased video bridging technology to connect to the networks.

For all Department offices and bureaus to be immediately interconnected through their VTC technology, video bridging technology is required. A video bridge allows certain firewalls<sup>8</sup> in an IP environment to be opened for connection to other secure IP networks and ISDN lines. Video bridging technology also allows IP networks to communicate with contacts outside of the network. We were informed by the Department’s Office of Chief Information Officer<sup>9</sup> that video

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<sup>4</sup> On March 31, 2010, the new Department Intranet Web site was introduced. The name of the Web site, *oneINTERIOR*, is touted to reflect that all U.S. Department of the Interior employees are “part of the DOI [Department] team.” The Web site’s primary goal is “to promote awareness and interactions that will increase employee engagement, improve internal communications...”

<sup>5</sup> IP is a high quality broadband connection, which is a standard Internet line, with average bandwidth. If the connection is good, the line can be used for video conferencing. As such, the quality of the connection will vary.

<sup>6</sup> ISDN is a digital telephone line that is used for high bandwidth use, such as video conferencing. The usage cost for ISDN is generally higher than for IP because the local telephone company will bill per minute service charge for ISDN, but the quality of the connection is generally more stable.

<sup>7</sup> Video bridging, consisting of both hardware and software products, converges a series of interactive video streams (from IP and ISDN networks, for example) into a single video feed. According to a video conferencing technology retailer, a basic bridge with the required infrastructure would cost approximately \$40,000 to \$50,000. These systems will likely require additional options and components for Department-wide support and use. Bureau officials stated that bridging equipment can cost up to \$250,000.

<sup>8</sup> A firewall is a part of a computer system or network that is designed to block unauthorized access while permitting authorized communications. It is a device or set of devices that is configured to permit or deny computer applications based upon a set of rules and other criteria.

<sup>9</sup> The Office of Chief Information Officer was tasked on December 14, 2010, by Secretarial Order No. 3309 to oversee and manage the Department’s five year project to modernize and consolidate the Department’s information technology systems, including telecommunication equipment.

bridging technology does not compromise the Department's data network security if the networks are properly arranged and appropriate policies and procedures are in place. Appendix 3 lists the type of video conferencing connectivity and availability of video bridging technology at each Department office and bureau.

### **Past Experience**

We were told that individuals who have had previous experience with older VTC equipment are reluctant to use the technology now. For example, an NPS Information Technology (IT) Officer told us that VTC technology was not very good 6 to 8 years ago. Technical problems related to picture quality, video connection interruptions, and audio transmission delays from these early experiences deter people from using the VTC equipment now, especially when there is no IT support staff available for assistance.

An NPS Telecommunications Specialist also told us that VTC equipment is often set up in multipurpose rooms, classrooms, storage rooms, or offices to maximize the use of the existing space. This creates a less-than-ideal experience for VTC users due to the poor lighting and sound quality in these rooms. This can result in employees having a bad experience with the equipment and thus are not interested in using it again. A Bureau of Land Management (BLM) IT Specialist concurred with this assessment saying that it is best to have a dedicated room for VTC. The IT Specialist stated that made-for-VTC conference rooms give the equipment a greater presence and thus encourage its use.



Figure 5. Bureau of Indian Affairs, Pacific Region's video teleconferencing site in Sacramento, CA. Because VTC equipment is set up in a multipurpose room with a small screen, having successful VTC meetings may be challenging. The small VTC screen is dwarfed by the projection screen next to it. OIG photo.

### **Availability of VTC Resources Not Known**

Maximum use of VTC technology is impeded because some Department employees do not know the resource is available. For example, a Bureau of Indian Affairs (BIA) Office of Information Operations Field Support Manager told us the VTC equipment in the regional office is rarely used. This was in part due to the equipment being located in a multipurpose conference room and partly because the existence of the equipment is not widely known. Similarly, a USGS Network Security Manager told us that, outside of USGS, very few people know that the VTC site exists in that location. The Network Security Manager said this is unfortunate because USGS is receptive to having personnel from other bureaus and offices use the equipment.

We found that officials from the Department and the bureaus generally supported the idea of cooperatively availing their VTC equipment to other Department or even non-Department offices. In fact, the officials we spoke to during our review stated that they would be willing to allow the use of their VTC equipment at no charge as long as there are no scheduling conflicts. Because the existence and

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availability of the VTC equipment is not well known or publicized, the Department cannot take full advantage of this resource.

### **Employee Motivation**

Traveling on business is considered by some employees, in both private and public sectors, as a job benefit. For example, in the Federal sector, travel comes with a travel allowance or per diem, can sometimes be to a tourist destination, or can provide a nice break from an employee's day-to-day duties in the office. Travel becomes even more of an incentive for individuals when frequent flyer or hotel loyalty reward programs are factored in. These factors may limit the appeal of video conference.

## **What are the Potential Benefits Associated with Increased VTC Use?**

### **Potential Travel Savings**

The Department has the opportunity to achieve significant reductions in travel with the increased use of VTC technology. For example, the Department spent about \$206 million on travel in Fiscal Year 2009, consisting of about \$62.9 million on airfare and \$142.9 million on non-airfare costs<sup>10</sup> (see Appendix 5). Of the \$206 million, \$42.4 million was spent on travel involving up to 2 nights of overnight lodging.

Based on the concept that video conferencing is most ideal for short turnaround trips, such as travel involving zero to 2 nights of lodging, we calculated a potential annual savings of \$4.2 to \$8.5 million based on the FY 2009 data. This calculation assumes a conservative 10-to-20 percent reduction in travel costs Department-wide. In other words, if the Department increased the use of its VTC equipment over travel by only 10 percent, it could potentially save \$4.2 million based on the FY 2009 expenditures. If the Department increased its use by 20 percent, it could potentially save \$8.5 million (see Appendix 5).

### **Potential Greenhouse Gas Reduction**

The Intergovernmental Panel on Climate Change (IPCC), a United Nations organization that assesses scientific, technical, and economic information on the effects of climate change, estimated that air travel currently accounts for about 2 percent of human-generated global carbon dioxide (CO<sub>2</sub>) emissions. According to the IPCC, air travel also accounts for about 3 percent of the potential warming

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<sup>10</sup> The travel costs were obtained from Northrop Grumman, the Department's contracted travel management services agency, using Sabre flight data and cost information as well as Northrop Grumman's GovTrip travel authorization, reservation, and reimbursement database. Non-airfare costs include hotel, rental car and gasoline, privately-owned vehicle, per diem, taxi, parking, and other authorized travel costs. The \$62.9 million spent on airfare was for 112,277 reserved flights or an average of \$560 per airline ticket.

effect of global emissions that can affect the earth's climate, including carbon dioxide. The IPCC's medium-range estimate forecasts that by 2050 the global aviation industry, including emissions from aircraft, will emit about 3 percent of global CO<sub>2</sub> emissions and about 5 percent of the potential warming effect of all global human-generated emissions.

Under Executive Order 13514, signed by the President on October 5, 2009, Federal agencies were directed to lead by example in the area of clean energy. This includes developing, implementing, and annually updating a plan that prioritizes actions based on a positive return on investment for the American taxpayer and to meet energy, water, and waste reduction targets. The Department's August 2010 "Strategic Sustainability Performance Plan" (SSPP), states that increasing the use of VTC is one of several strategies to achieve the Department's goal of reducing other indirect greenhouse gas emissions<sup>11</sup> by 9 percent by 2020.

While the Department includes VTC use in its SSPP, it has no specific performance measures for this strategy. In addition, baseline data on the Department's greenhouse gas emissions have not yet been established. Reducing travel between 10 and 20 percent will contribute to the Department's SSPP goals by eliminating an estimated 298 to 596 tons of CO<sub>2</sub> emissions,<sup>12</sup> equivalent to the emissions from 31,000 to 62,000 gallons of gasoline.<sup>13</sup>

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<sup>11</sup> Indirect greenhouse gas emissions are from sources not owned or directly controlled by a Federal agency, but related to agency activities, services, and employee travel and commuting.

<sup>12</sup> These figures were calculated using the total flown miles of 11,122,004 for the top 25 city pairs (see Appendix 6). The 11,122,004 calculates to an equivalency of about 2,978 tons of CO<sub>2</sub> gas emissions, also known as the carbon footprint—the total amount of greenhouse gas produced to directly and indirectly support human activities, usually expressed in equivalent tons of CO<sub>2</sub>. The 2,978 tons was derived from the University of California, Berkeley air travel calculator (Source: <http://enviro.berkeley.edu/aircalculator>). Applying a 10 to 20 percent reduction to the total 11,122,004 mileage flown for the top 25 city pairs, the potential reduction in flown miles range from 1,112,200 to 2,224,401 miles. These mileage numbers translate to a potential reduction in greenhouse gas emissions of an estimated 298 to 596 tons of CO<sub>2</sub>, which has an emissions equivalent to 30,819 to 61,638 gallons of gasoline.

<sup>13</sup> One ton of CO<sub>2</sub> is generated from the use of 103.42 gallons of gasoline.

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# Conclusion and Recommendations

## Conclusion

The Department can achieve significant annual savings on travel costs—between \$4.2 and \$8.5 million for travel involving zero to 2 nights, and between \$11.2 and \$22.4 million for travel involving zero to 4 nights—by increasing the use of VTC at its 315 endpoints throughout the United States.

These savings represent funds that could be used for other operational or program purposes (see Appendix 7). At a time when Federal agency budgets are increasingly tight, the use of VTC technology is an economical and immediate way to stretch the Department's dollars and, at the same time, support the President's green initiatives and greenhouse gas reduction efforts. The support and backing of senior leadership will underscore the savings and environmental benefits to be achieved from use of VTC technology.

## Recommendations

1. Develop and implement policies and procedures to create awareness of VTC's benefits and advance its optimal use.

**Agency Response:** The Department concurred with the recommendation. The Department will promulgate policy on procurement of VTC equipment and use of VTC capabilities as part of its ongoing IT Transformation initiative under the Chief of Information Officer (CIO) by December 31, 2012.

**OIG Reply:** We consider this recommendation resolved but not implemented.

2. Strategically align VTC equipment with the Department's most frequent flight departure and destination cities and flight costs to maximize the use of the equipment, and periodically re-evaluate the Department's frequent flight patterns for continuous realignment of the VTC equipment.

**Agency Response:** The Department concurred that strategic alignment of VTC equipment is necessary, but did not concur that VTC equipment and shared VTC services should be aligned to cities with frequent flight departures and arrivals without additional analysis. In its written response, the Department stated that cities with high frequency of travel may or may not correlate with locations where the Department has a large presence, adequate network bandwidth availability to support the use of VTC equipment, and availability of IT personnel to service and maintain the

equipment. Instead, the Department will perform an analysis to determine viable locations for VTC, including an analysis of employee proximity and network capabilities. This analysis will be included as part of the IT Transformation initiative under the CIO and will be completed by December 31, 2012.

**OIG Reply:** We consider this recommendation resolved but not implemented. We agree that aligning VTC capabilities with cities that are used frequently for flights by Department personnel may not be the best option in all cases. We believe, however, that any analysis the Department performs to determine viable locations for VTC should also include an analysis of frequent flight departure and arrival cities and the purpose of these travels. Although our review did not include an analysis of the purpose of the trips, the results of our review highlighted for the Department which cities are the most frequently flown to and from and, therefore, provides the Department an opportunity to take a closer look at these cities and determine if these locations are viable for VTC.

3. Develop and implement a plan to make VTC equipment compatible and interconnected Department-wide, including exploring options to acquire video bridging technology for existing VTC equipment and ensuring compatibility for future VTC equipment purchases.

**Agency Response:** The Department concurred that standardization of VTC capabilities is necessary to maximize its use. The Department will promulgate policy on procurement of VTC equipment and use of VTC capabilities as part of the Telecommunications service area plan within its ongoing IT Transformation initiative under the CIO by December 31, 2012.

**OIG Reply:** We consider this recommendation resolved but not implemented. In our recommendation, we suggested that the Department explore options to acquire video bridging technology as a potential approach to reaching maximum interconnectivity. We did not mean to suggest that simply interconnecting existing equipment will most efficiently address the interoperability issue. Rather, we agree that the Department should seek ways to enable interoperability of existing VTC systems, to the extent that doing so does not require significant new investment. We also agree that emerging technology and capabilities should be considered, especially during the Department's cost-to-benefit deliberations, when planning for its long-term VTC strategy.

4. Post available VTC equipment information on the Department Intranet Web site to encourage cooperative sharing of VTC equipment, and

develop and implement a VTC scheduling system capable of searching the database of VTC sites and showing available times for the equipment. Information on the Department Intranet should include the following:

- location of equipment;
- type of equipment;
- bridging technology availability;
- maximum capacity of VTC site location;
- pricing schedule (if applicable);
- bureau or office contact name and telephone number or email address; and
- IP address and ISDN connection number of VTC endpoint.

**Agency Response:** The Department concurred that a strategy and supporting capabilities are necessary to fully develop a shared services VTC capability. The Department will develop this strategy and supporting capabilities as part of the Telecommunications service area plan within its ongoing IT Transformation initiative under the CIO by December 31, 2012.

**OIG Reply:** We consider this recommendation resolved but not implemented.

5. Develop quantitative performance measurements related to reduction of greenhouse gas emissions as it relates to the increased use of VTC technology for the Department's SSPP, and coordinate these performance measures with the Department's Government Performance Results Act Strategic Plan.

**Agency Response:** The Department did not concur that there is a direct relationship with the use of VTC technology and a reduction in travel and greenhouse gas emissions. In its response, the Department stated that fluctuations in usage of VTC do not reliably correlate to changes in travel patterns and that VTC usage is not a reliable gauge of travel costs avoidance and greenhouse gas emissions reduced. The Department recommended, however, that "there are other tools and metrics being developed" by the Department, but did not elaborate on them.

**OIG Reply:** We consider this recommendation resolved based on the Department's response acknowledging that it is developing tools and metrics to link its performance measures to an increased usage of current and advanced VTC technologies and the corresponding reductions in travel costs and greenhouse gas emissions. Accordingly, we request that

the Department provide to the Office of Policy, Management and Budget additional information that describes the plans it is taking to link performance measures to increased VTC usage and reduced travel and greenhouse gas emissions; target date; and title of the official responsible for implementation of these tools and metrics.

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# Appendix I: Scope and Methodology

We performed our evaluation in accordance with the “Quality Standards for Inspections,” issued by the Council of the Inspectors General on Integrity and Efficiency. The evaluation focused on the U.S. Department of the Interior’s (Department) use of video teleconferencing (VTC) technology. To accomplish the evaluation, we obtained Fiscal Year 2009 travel data from Northrop Grumman, the Department’s contracted travel management services agency, using Sabre flight data and cost information, as well as Northrop Grumman’s GovTrip travel authorization, reservation, and reimbursement database. We also obtained Department bureau and office listings of all VTC equipment, including the location, type, availability, point of contact, purchase and operation dates, purchase price, maintenance cost, fee schedule, and IP address (if any) of the equipment. The VTC equipment listings were as of April 2010. We did not verify the accuracy, completeness, and consistency of the VTC equipment listings, as reported by the Department bureaus and offices. For some of the equipment listed in Appendix 8, we added the site/equipment location for report presentation purposes. We believe that the work performed provides a reasonable basis for our conclusions and recommendations.

We conducted our fieldwork from April 2010 to August 2010. We performed the following work:

- Reviewed prior Office of Inspector General and U.S. Government Accountability Office reports;
- Reviewed the Department’s “Strategic Sustainability Performance Plan,” dated August 31, 2010, and “[Government Performance Results Act] Strategic Plan, FY 2007-2012;”
- Reviewed the Department’s Annual Performance and Accountability Reports for Fiscal Years 2007, 2008, and 2009;
- Reviewed various bureau strategic plans and performance reports;
- Reviewed excerpts of the Intergovernmental Panel on Climate Change’s 1999 and 2007 reports, “Aviation and the Global Atmosphere” and “Climate Change 2007: Mitigation of Climate Change (Fourth Assessment Report);”
- Reviewed VTC and video bridging technology price quotes;
- Visited and photographed 21 VTC locations;
- Segregated and analyzed GovTrip and Sabre travel data by the number of travel days, focusing on short turnaround trips (groupings of 0 to 2 nights,

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up to 3 nights, up to 4 nights, and up to 5 or more nights of travel) because these trips have the highest potential of being replaced by VTC;

- Calculated the non-airfare costs using a non-airfare to airfare estimated cost factor based on the travel cost data from the GovTrip and Sabre databases;
- Identified from the 1 to 3 day travel data grouping the Department's top 25 frequently flown and most costly flights;
- For illustration purposes, calculated the Department's aviation emissions carbon footprint for 1 to 3 day trips for the top 25 most costly city pair flights flown using the University of California, Berkeley air travel calculator,<sup>14</sup> and the potential reduction of this carbon footprint; and
- Interviewed IT specialists and other Department and bureau personnel directly or indirectly involved in the management, operation, or purchasing of VTC equipment; a Departmental travel official; Northrop Grumman account manager; and VTC and video bridging technology vendor.

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<sup>14</sup> We did not verify the accuracy of the University of California, Berkeley air travel calculator and therefore do not in any way endorse it. Its use was purely for demonstration purposes. There are other air travel calculators available for use if the Department or other users of our report wanted to do so.

## Appendix 2: Number of VTC Endpoints by Bureau/Office and State

| State | NBC, OIG, and PMB | BIA | USBR | BL M | BOEMRE | NPS | USFWS | USGS | Total |
|-------|-------------------|-----|------|------|--------|-----|-------|------|-------|
| AL    |                   |     |      |      |        | 1   |       |      | 1     |
| AK    |                   | 2   |      | 1    | 1      | 56  | 1     | 2    | 63    |
| AZ    |                   | 9   | 2    | 4    |        |     |       | 2    | 17    |
| CA    | 1                 | 2   | 2    | 1    | 1      | 2   | 1     | 8    | 18    |
| CO    | 2                 | 1   | 5    | 11   | 6      | 6   | 2     | 3    | 36    |
| DC    | 3                 | 7   | 2    | 4    | 2      | 3   |       |      | 21    |
| FL    |                   |     |      |      |        | 7   |       | 2    | 9     |
| GA    |                   |     |      |      |        | 2   | 1     |      | 3     |
| HI    |                   |     |      |      |        | 1   |       | 1    | 2     |
| ID    |                   |     | 1    | 4    |        |     | 1     |      | 6     |
| KS    |                   | 1   |      |      |        |     |       |      | 1     |
| ME    |                   |     |      |      |        | 1   |       |      | 1     |
| MD    |                   |     |      |      |        | 2   |       |      | 2     |
| MA    |                   |     |      |      |        | 2   | 1     | 2    | 5     |
| MI    |                   | 1   |      |      |        |     |       |      | 1     |
| MN    |                   | 2   |      |      |        |     | 1     | 1    | 4     |
| MS    |                   |     |      | 2    |        |     |       |      | 2     |
| MO    |                   |     |      |      |        |     |       | 1    | 1     |
| MT    |                   | 2   | 2    | 1    |        |     |       |      | 5     |
| NE    |                   |     | 1    |      |        | 1   |       |      | 2     |
| NV    |                   |     | 2    | 4    |        | 1   |       |      | 7     |
| NM    |                   | 14  |      | 1    |        |     | 1     |      | 16    |
| NY    |                   |     |      |      |        | 1   |       |      | 1     |
| NC    |                   |     |      |      |        | 1   |       |      | 1     |
| ND    |                   | 3   | 1    | 1    |        |     |       |      | 5     |
| OK    |                   | 2   |      |      | 2      |     |       |      | 4     |
| OR    |                   | 1   |      | 16   |        |     | 1     |      | 18    |
| PA    |                   |     |      |      |        | 8   |       |      | 8     |
| SD    |                   | 5   |      |      |        |     |       | 1    | 6     |
| TN    |                   | 2   |      |      |        |     |       |      | 2     |
| TX    |                   |     | 1    |      | 2      |     |       |      | 3     |
| UT    |                   |     | 1    | 7    |        |     |       |      | 8     |
| VA    | 1                 | 4   |      | 3    | 1      | 3   | 2     | 5    | 19    |

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|       |                            |     |      |         |        |     |       |      |       |
|-------|----------------------------|-----|------|---------|--------|-----|-------|------|-------|
| WA    |                            | 1   |      | 2       |        | 2   | 1     | 1    | 7     |
| WV    |                            |     |      |         |        | 3   | 2     |      | 5     |
| WI    |                            | 1   |      | 2       |        |     |       |      | 3     |
| State | NBC,<br>OIG,<br>and<br>PMB | BIA | USBR | BL<br>M | BOEMRE | NPS | USFWS | USGS | Total |
| WY    |                            |     | 1    | 1       |        |     |       |      | 2     |
| Total | 7                          | 60  | 21   | 65      | 15     | 103 | 15    | 29   | 315   |

OSM has no VTC

Data provided by Department bureau or office as of April 19, 2010.

## Appendix 3: Department VTC Networks and Video Bridges

| Department Offices and Bureaus  | IP | ISDN            | Video Bridge |
|---|----|-----------------|--------------|
| National Business Center <sup>15</sup>                                      |    | X               |              |
| Office of Inspector General   | X  |                 |              |
| Office of Policy, Management and Budget                                     |    | X               |              |
| Bureau of Indian Affairs  | X  |                 | X            |
| Bureau of Land Management   |    | X <sup>16</sup> |              |
| Bureau of Ocean Energy Management, Regulation and Enforcement <sup>17</sup> | X  | X               |              |
| Bureau of Reclamation   | X  | X               | X            |
| National Park Service   | X  | X               | X            |
| Office of Surface Mining <sup>18</sup>                                      |    |                 |              |
| U.S. Fish and Wildlife Service  | X  |                 | X            |
| U.S. Geological Survey  | X  | X               | X            |

Note: This table shows the type of VTC connectivity each Department office and bureau has and whether or not the office or bureau has VTC.

<sup>15</sup> The National Business Center's VTC equipment is generally available for the use of all other Departmental offices not listed on this table.

<sup>16</sup> We were told that BLM plans to switch from ISDN to an IP network with a video bridge.

<sup>17</sup> Minerals Management Service (MMS) at the time of data collection.

<sup>18</sup> OSM does not have VTC and video bridging technology.

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## Appendix 4: Top 25 City Pairs Ranked by Total Cost

Top 25 City Pairs Ranked by Total Cost

| City Pairs                           | # of Trips | Airfare   | Non-Airfare <sup>19</sup> | Total Cost  |
|--------------------------------------|------------|-----------|---------------------------|-------------|
| Denver, CO - Washington, DC          | 1,028      | \$602,856 | \$626,971                 | \$1,229,827 |
| Anchorage, AK - Fairbanks, AK        | 820        | \$272,852 | \$283,767                 | \$556,619   |
| Boise, ID - Denver, CO               | 360        | \$185,342 | \$192,756                 | \$378,098   |
| Billings, MT - Denver, CO            | 428        | \$169,486 | \$176,266                 | \$345,752   |
| Albuquerque, NM - Washington, DC     | 250        | \$161,689 | \$168,156                 | \$329,845   |
| Denver, CO - Sacramento, CA          | 329        | \$141,076 | \$146,720                 | \$287,796   |
| Reno, NV - Las Vegas, NV             | 452        | \$136,026 | \$141,467                 | \$277,493   |
| Denver, CO - Las Vegas, NV           | 467        | \$131,385 | \$136,640                 | \$268,025   |
| Denver, CO - Albuquerque, NM         | 382        | \$120,351 | \$125,165                 | \$245,516   |
| Denver, CO - Salt Lake City, UT      | 481        | \$118,897 | \$123,653                 | \$242,550   |
| Denver, CO - Bismarck, ND            | 99         | \$104,908 | \$109,104                 | \$214,012   |
| Phoenix, AZ - Las Vegas, NV          | 322        | \$100,603 | \$104,627                 | \$205,230   |
| Albuquerque, NM - Phoenix, AZ        | 297        | \$97,745  | \$101,655                 | \$199,400   |
| Minneapolis, MN - Washington, DC     | 136        | \$97,668  | \$101,575                 | \$199,243   |
| New Orleans, LA - Washington, DC     | 142        | \$93,326  | \$97,059                  | \$190,385   |
| Salt Lake City, UT - Albuquerque, NM | 217        | \$93,294  | \$97,026                  | \$190,320   |
| Anchorage, AK - Juneau, AK           | 181        | \$91,702  | \$95,370                  | \$187,072   |

<sup>19</sup> The total non-airfare costs were computed using a non-airfare to airfare estimated cost factor based on travel cost and flight data from the GovTrip and Sabre databases.

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|                                 |            |                   |                   |                    |
|---------------------------------|------------|-------------------|-------------------|--------------------|
| Denver, CO - Phoenix, AZ        | 273        | \$88,030          | \$91,551          | \$179,581          |
| Atlanta, GA - Washington, DC    | 249        | \$87,806          | \$91,318          | \$179,124          |
| City Pairs                      | # of Trips | Airfare           | Non-Airfare       | Total Cost         |
| Boston, MA - Washington, DC     | 244        | \$87,473          | \$90,972          | \$178,445          |
| Boise, ID - Portland, OR        | 495        | \$87,198          | \$90,686          | \$177,884          |
| Sacramento, CA - Washington, DC | 123        | \$83,941          | \$87,298          | \$171,239          |
| Anchorage, AK - Barrow, AK      | 100        | \$77,475          | \$80,574          | \$158,049          |
| Sacramento, CA - San Diego, CA  | 236        | \$77,312          | \$80,405          | \$157,717          |
| Phoenix, AZ – Washington, DC    | 93         | \$75,931          | \$78,968          | \$154,899          |
| Total                           | 8,204      | \$3.4*<br>Million | \$3.5*<br>Million | \$6.9**<br>Million |

Note: This table shows the top 25 city pairs ranked by total cost. Each city pair includes airfare and non-airfare costs.

\*Rounded to the nearest hundred thousand dollars.

\*\* Total of the two rounded numbers for airfare and non-airfare costs.

# Appendix 5: Fiscal Year 2009 Travel Expenditures and Potential Travel Savings

## Travel Expenditures (in Millions of Dollars)

| Number of Nights | Type of Cost |             |         |
|------------------|--------------|-------------|---------|
|                  | Airfare      | Non-Airfare | Total   |
| 2 or fewer       | \$15.4       | \$27.0      | \$42.4  |
| 3                | \$10.0       | \$22.5      | \$32.5  |
| 4                | \$11.2       | \$25.7      | \$36.9  |
| 5 or more        | \$26.3       | \$67.7      | \$94.0  |
| Total            | \$62.9       | \$142.9     | \$205.8 |

Note: This table shows the travel expenditures by type and length of trip for Fiscal Year 2009 in millions of dollars. Total travel costs for nights involving up to 4 nights of travel is \$111.8 million.

## Potential Travel Savings (in Millions of Dollars)

| Percentage of Travel Reduction | Potential Savings by Length of Trip in Number of Nights |        |        |            |
|--------------------------------|---|--------|--------|------------|
|                                | 2 or fewer  | 3      | 4      | 4 or fewer |
| 10                             | \$4.2   | \$3.3  | \$3.7  | \$11.2     |
| 20                             | \$8.5   | \$6.5  | \$7.4  | \$22.4     |
| 30                             | \$12.7  | \$9.8  | \$11.1 | \$33.6     |
| 40                             | \$17.0  | \$13.0 | \$14.8 | \$44.8     |
| 50                             | \$21.2  | \$16.3 | \$18.5 | \$56.0     |

Note: This table shows potential savings in travel expenditures for Fiscal Year 2009 in millions of dollars. The percentages were applied to the total travel costs shown in the Travel Expenditures table above.

# Appendix 6: Top 25 City Pairs Mileage Totals

## Top 25 City Pairs Mileage Totals

| City Pairs                           | # of Trips | Total Miles |
|--------------------------------------|------------|-------------|
| Denver, CO - Washington, DC          | 1,028      | 3,015,520   |
| Anchorage, AK - Fairbanks, AK        | 820        | 428,040     |
| Boise, ID - Denver, CO               | 360        | 467,280     |
| Billings, MT - Denver, CO            | 428        | 389,480     |
| Albuquerque, NM - Washington, DC     | 250        | 820,908     |
| Denver, CO - Sacramento, CA          | 329        | 598,122     |
| Reno, NV - Las Vegas, NV             | 452        | 311,880     |
| Denver, CO - Las Vegas, NV           | 467        | 586,552     |
| Denver, CO - Albuquerque, NM         | 382        | 266,636     |
| Denver, CO - Salt Lake City, UT      | 481        | 376,142     |
| Denver, CO - Bismarck, ND            | 99         | 102,366     |
| Phoenix, AZ - Las Vegas, NV          | 322        | 164,220     |
| Albuquerque, NM - Phoenix, AZ        | 297        | 194,832     |
| Minneapolis, MN - Washington, DC     | 136        | 250,848     |
| New Orleans, LA - Washington, DC     | 142        | 272,536     |
| Salt Lake City, UT - Albuquerque, NM | 217        | 213,962     |
| Anchorage, AK - Juneau, AK           | 181        | 206,702     |
| Denver, CO - Phoenix, AZ             | 273        | 328,146     |
| Atlanta, GA - Washington, DC         | 249        | 269,754     |
| Boston, MA - Washington, DC          | 244        | 197,494     |
| Boise, ID - Portland, OR             | 495        | 340,560     |
| Sacramento, CA - Washington, DC      | 123        | 581,954     |
| Anchorage, AK - Barrow, AK           | 100        | 145,000     |
| Sacramento, CA - San Diego, CA       | 236        | 226,560     |
| Phoenix, AZ - Washington, DC         | 93         | 366,510     |
|                                      | 8,204      | 11,122,004  |

Note: This table shows the top 25 most costly city pairs, in ranking of number of trips and the corresponding number of miles flown.

---

## Appendix 7: Classification of Monetary Amounts

| ISSUE          | FUNDS TO BE PUT TO BETTER USE <sup>20</sup> |
|----------------|---|
| Travel Savings | \$6.3 Million                               |
|                |   |
| <b>TOTAL</b>   | <b>\$6.3 Million</b>                        |

---

<sup>20</sup> Funds to be put to better use are those funds that potentially could be saved annually if the Department required the usage of VTC over travel when VTC is a viable option. The potential cost savings is based on a conservative 10 to 20 percent increase in VTC use over travel involving up to two nights of lodging. The range for potential savings is \$4.2 to \$8.5 million for an average savings of \$6.3 million.

Appendix 8 (pages 27 – 55) has been redacted under 5 U.S.C. § 552 (b)(6) of the Freedom of Information Act.

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## **Appendix 9: Department Response**

The Department's response to the draft report follows on page 57.



# United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

SEP 30 2011

## Memorandum

To: Kimberly Elmore  
Assistant Inspector General for Audits, Inspections, and Evaluations

From: Rhea Suh *Patricia Howe (Acting)*  
Assistant Secretary  
Policy, Management and Budget

Subject: Comments on Report WR-EV-MOA-0004-2010, Interior's Video  
Teleconferencing Usage

Thank you for the opportunity to comment on your draft report. We agree appropriate use of Video Teleconferencing (VTC) can contribute to savings and to meeting the Department's carbon reduction goals.

Over the past decade, the Department has made a significant investment in VTC technology. Most of this investment has been, as with other forms of technology equipment and services, uncoordinated investment by individual bureaus and offices. As a result, much of the currently installed VTC technology is not readily interoperable and therefore cannot easily be used to connect with VTC equipment across bureau or office lines.

The Department agrees that maximizing the value of its investment in VTC technology is critical, and as a result we have included VTC technology within the scope of the IT Transformation initiative. The Telecommunications team with the IT Transformation working group is charged with developing a plan to make the best use of the Department's existing investment in VTC. However, a key element of the exploration of how best to transform the Department's VTC investment will be an examination of the benefits of VTC in light of communications trends and the expected business value of the investment.

Recent market trends, which are supported by the anecdotal evidence of the Department's experience, suggest that VTC does not, in fact, result in the desired reduction in travel that it originally promised. It is still relatively challenging to participate in a lengthy meeting via VTC because the audio and visual quality does not remotely approximate face-to-face contact. Instead, most bureaus report that VTC is marginally more valuable than traditional audio conferencing, but for key meetings, travel is still the preferred option. Private sector companies appear to have had similar experiences with VTC. The market trend suggests movement toward both the low end and high end of VTC. For example, most mobile computers and tablets now come equipped with a video camera to support VTC and recent commercial products support VTC from mobile devices, which allows for person-to-person VTC. Person-to-person VTC is consequently becoming more commonplace. This trend is analogous to the shift in traditional telephony from

place-to-place calling to person-to-person calling with the advent of mobile telephony. On the high-end of the spectrum, several traditional VTC providers have begun offering “telepresence” tools, which do appear to have the intended impact of reducing travel because they more closely approximate the experience of face-to-face, live contact.

In addition, it is important to consider VTC in the context of the larger push to enable greater collaboration capability within the Department and across bureau and office lines. Traditional VTC is only one of the technologies used by the Department to bring together virtual teams for meetings and workplace sharing. The Department extensively uses audio-only teleconferencing. In addition, technologies such as Microsoft’s “Live Meeting” and Juniper’s “Secure Meeting” allow remote users to share information across geographic boundaries and create a real-time virtual workplace to enhance collaboration. These applications are widely used across the Department and have saved untold amounts of travel and related expenses. We believe the Department’s robust workplace collaboration capability is one of the reasons traditional VTC usage is on the decline and helps explain why so much legacy equipment across the Department goes unused today.

In short, the value of traditional VTC is diminishing with the proliferation of other technologies and may not represent the best value for the Department in the years to come. Maximizing the value of our current investment by seeking ways to enable interoperability of VTC systems, to the extent that doing so does not require significant new investment, is very much a good interim step. However, the Department’s long-term VTC strategy must consider emerging technology and capability and the likelihood of achieving the Department’s long term business goals.

Your draft report included 5 recommendations. Our response to each recommendation is below:

**Recommendation 1:** “Develop and implement policies and procedures to create awareness of VTC’s benefits and advance its optimal use.”

**Comment:** We concur that Departmental policy on procurement and use of VTC equipment is necessary. This policy must include the use of mobile and “person-to-person” VTC capability.

In December 2010, Secretary Salazar signed Secretarial Order 3309, *Information Technology Management Functions and Establishment of Funding Authorities*. A primary objective of this Order was to consolidate management of the Department’s information technology (IT) infrastructure under the Chief Information Officer (CIO). An expected result of this consolidation is lower cost of IT goods and a wider adoption of shared services.

An IT Transformation Plan (Plan) was submitted to the Secretary in June 2011. To implement the Plan, the Department formed teams that included representatives from the Bureaus and Offices. The “Telecommunication Team” was tasked to develop a strategy for consolidating the Department’s IT telecommunications infrastructure. This consolidation includes VTC services.

**Actions Taken or Planned:** The Department will promulgate policy on procurement of VTC equipment and use of VTC capabilities as part of its ongoing IT Transformation initiative.

**Target Date:** 12/31/2012

**Responsible Official:** Bernard J. Mazer, CIO.

**Recommendation 2:** “Strategically align VTC equipment with the Department’s most frequent flight departure and destination cities and flight costs to maximize the use of the equipment, and periodically re-evaluate the Department’s frequent flight patterns for continuous realignment of the VTC equipment.”

**Comment:** We concur that strategic alignment of traditional VTC equipment across organizational boundaries is necessary. We do not concur that VTC equipment and shared VTC services should be aligned to cities with frequent flight departures and arrivals without additional analysis.

There are many reasons for official travel, including inspections and attending externally-hosted conferences or training seminars. Your analysis of cities with frequent flight departures and arrivals did not include analysis of the purpose of the trips. Many conferences and training seminars are hosted in Las Vegas. These conferences and training seminars are generally provided by third parties and VTC may or may not be appropriate or sponsored by the conference/training provider.

Aligning traditional VTC capabilities with cities that are used frequently for flights by Department personnel may not be the best option. Cities with high frequency of travel may, or may not, correlate with locations where the Department has a large presence, network bandwidth is available to support use of the traditional VTC equipment, and IT personnel are available to service and maintain the equipment.

**Actions Taken or Planned:** As part of the IT Transformation, the Department will perform an analysis to determine viable locations for traditional VTC capabilities that includes an analysis of employee proximity and network capabilities.

**Target Date:** 12/31/2012

**Responsible Official:** Bernard J. Mazer, CIO.

**Recommendation 3:** “Develop and implement a plan to make VTC equipment compatible and interconnected Department-wide, including exploring options to acquire video bridging technology for existing VTC equipment and ensuring compatibility for future VTC equipment purchases.”

**Comment:** We concur that standardization of VTC capabilities is necessary in order to maximize its use. We do not concur that simply interconnecting existing equipment will most efficiently address this need due to the wide variety of equipment on-hand, the equipment’s

various ages, its connection requirements (IP vs. ISDN), and the feasibility of bridging technology. We believe the best path forward is to leverage commercial capabilities on mobile devices, as well as to enable video on personal devices (e.g. desktops and laptops) through modern H.323 IP technologies that provide greater flexibility.

Secretarial Order 3309 consolidated management of the Department's IT infrastructure under the CIO. A result of this consolidation is expected to be standardization of shared services, including VTC.

**Actions Taken or Planned:** The Department will promulgate policy on procurement of VTC equipment and use of VTC capabilities as part of the Telecommunications service area plan within the ongoing IT Transformation initiative.

**Target Date:** 12/31/2012

**Responsible Official:** Bernard J. Mazer, CIO.

**Recommendation 4:** "Post available VTC equipment information on the Department Intranet website to encourage cooperative sharing of VTC equipment, and develop and implement a VTC scheduling system capable of searching the database of VTC sites and showing available times for the equipment."

**Comment:** We concur that a strategy and supporting capabilities are necessary to fully develop a shared services VTC capability.

**Actions Taken or Planned:** The strategy and capabilities will be developed as part of the Telecommunications service area plan within the Department's ongoing IT Transformation initiative.

**Target Date:** 12/31/2012

**Responsible Official:** Bernard J. Mazer, CIO.

**Recommendation 5:** "Develop quantitative performance measurements related to reduction of greenhouse [*sic*] gas emissions as it relates to the increased use of VTC technology for the Department's SSPP, and coordinate these performance measures with the Department's Government Performance Results Act Strategic Plan."

**Comment:** We do not concur that there is a direct relationship with the use of VTC technology and a reduction in travel and reduce greenhouse gas emissions.

Fluctuations in usage of traditional VTC do not reliably correlate to changes in travel patterns. For example, traditional VTC usage may increase when capability becomes available that did not exist before. However, the increase of VTC usage simply because VTC became available does not necessarily imply that travel would have occurred otherwise; other forms of collaboration,

such as audio-only conference calls or WebEx, may have been used. There are other factors at work as well. Reduced travel may be due to decreasing budgets rather than availability of traditional VTC. VTC usage is not a reliable gauge of travel costs avoided and greenhouse gas emissions reduced.

Furthermore, we are unable to measure the use of commercial products that support VTC from mobile devices. It is not practical to measure “person-to-person” VTC that may occur between remote employees with video-enabled laptops. As VTC becomes a more personal experience, person-to-person VTC may replace phone calls. Greater personal usage of this emerging capability does not translate to travel avoided.

We recommend that there are other tools and metrics being developed by the Department.

If you have further questions, please feel free to contact Bernard J. Mazer, CIO. Mr. Mazer can be reached at (202) 268-6194 or [bernard\\_mazer@ios.doi.gov](mailto:bernard_mazer@ios.doi.gov).

cc: Bernard J. Mazer, CIO

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## Appendix I 0: Status of Recommendations

| Recommendations | Status                     | Action Required  |
|-----------------|----------------------------|--|
| I – 5           | Resolved; not implemented. | No further response to OIG is required. The recommendations will be referred to the Assistant Secretary for PMB for tracking of implementation. For Recommendation 5, we request that the Department provide PMB with additional information describing its plans for linking performance measures to VTC use. |

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