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REPORT
109–157

REMOTE SENSING APPLICATIONS ACT OF 2005

JUNE 27, 2005.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. BOEHLERT, from the Committee on Science, submitted the following

R E P O R T

[To accompany H.R. 426]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, to whom was referred the bill (H.R. 426) to encourage the development and integrated use by the public and private sectors of remote sensing and other geospatial information, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

CONTENTS

		Page
I.	Amendment	2
II.	Purpose of the Bill	4
III.	Background and Need for the Legislation	4
IV.	Summary of Hearings	4
V.	Committee Actions	5
VI.	Summary of Major Provisions of the Bill, as Amended	6
VII.	Section-by-Section Analysis (By Title and Section)	6
VIII.	Committee Views	8
IX.	Cost Estimate	8
X.	Congressional Budget Office Cost Estimate	8
XI.	Compliance With Public Law 104–4 (Unfunded Mandates)	9
XII.	Committee Oversight Findings and Recommendations	9
XIII.	Statement on General Performance Goals and Objectives	9
XIV.	Constitutional Authority Statement	9
XV.	Federal Advisory Committee Statement	9
XVI.	Congressional Accountability Act	10
XVII.	Statement on Preemption of State, Local, or Tribal Law	10
XVIII.	Changes in Existing Law Made by the Bill, as Reported	10
XIX.	Committee Recommendations	10
XX.	Proceedings of the Full Committee Markup	11

39–006

I. AMENDMENT

The amendment is as follows:
Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "Remote Sensing Applications Act of 2005".

SEC. 2. FINDINGS.

The Congress finds that—

(1) although urban land use planning, growth management, and other functions of State, local, regional, and tribal agencies are rightfully within their jurisdiction, the Federal Government can and should play an important role in the development and demonstration of innovative techniques to improve comprehensive land use planning and growth management;

(2) the United States is making a major investment in acquiring remote sensing and other geospatial information from both governmental and commercial sources;

(3) while much of the data is being acquired for scientific and national security purposes, it also can have important applications to help meet societal goals;

(4) it has already been demonstrated that Landsat, commercial, and other earth observation data can be of enormous assistance to Federal, State, local, regional, and tribal agencies for urban land use planning, coastal zone management, natural and cultural resource management, and disaster monitoring;

(5) remote sensing, coupled with the emergence of geographic information systems and satellite-based positioning information, offers the capability of developing important new applications of integrated sets of geospatial information to address societal needs;

(6) the full range of applications of commercial and civil remote sensing and other forms of geospatial information to meeting public sector requirements has not been adequately explored or exploited;

(7) the Land Remote Sensing Policy Act of 1992, Presidential Decision Directive 23 of 1994, the Commercial Space Act of 1998, and the United States Commercial Remote Sensing Policy, issued by the President on April 25, 2003, all support and promote the development of United States commercial remote sensing capabilities;

(8) many State, local, regional, tribal, and Federal agencies are unaware of the utility of remote sensing and other geospatial information for meeting their needs, even when research has demonstrated the potential applications of that information;

(9) remote sensing and other geospatial information can be particularly useful to State, local, regional, and tribal agencies in the area of urban planning, especially in their efforts to plan for and manage the impacts of growth, development, and sprawl, as well as in environmental impact and disaster relief planning and management;

(10) the National Aeronautics and Space Administration, in coordination with other agencies, can play a unique role in demonstrating how data acquired for scientific purposes, when combined with other data sources and processing capabilities, can be applied to assist State, local, regional, and tribal agencies and the private sector in decisionmaking in such areas as agriculture, weather forecasting, and forest management; and

(11) in addition, the National Aeronautics and Space Administration, in conjunction with other agencies, can play a unique role in stimulating the development of the remote sensing and other geospatial information sectors through pilot projects to demonstrate the value of integrating governmental and commercial remote sensing data with geographic information systems and satellite-based positioning data to provide useful applications products.

SEC. 3. DEFINITIONS.

In this Act—

(1) the term "Administrator" means the Administrator of the National Aeronautics and Space Administration;

(2) the term "geospatial information" means knowledge of the nature and distribution of physical and cultural features on the landscape based on analysis of data from airborne or spaceborne platforms or other types and sources of data;

(3) the term "high resolution" means resolution better than five meters; and

(4) the term "institution of higher education" has the meaning given that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

SEC. 4. PILOT PROJECTS TO ENCOURAGE PUBLIC SECTOR APPLICATIONS.

(a) IN GENERAL.—The Administrator shall establish a program of grants for competitively awarded pilot projects to explore the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs.

(b) PREFERRED PROJECTS.—In awarding grants under this section, the Administrator shall give preference to projects that—

(1) make use of commercial data sets, including high resolution commercial satellite imagery and derived satellite data products, existing public data sets where commercial data sets are not available or applicable, or the fusion of such data sets;

(2) integrate multiple sources of geospatial information, such as geographic information system data, satellite-provided positioning data, and remotely sensed data, in innovative ways;

(3) include funds or in-kind contributions from non-Federal sources;

(4) involve the participation of commercial entities that process raw or lightly processed data, often merging that data with other geospatial information, to create data products that have significant value added to the original data; and

(5) taken together demonstrate as diverse a set of public sector applications as possible.

(c) OPPORTUNITIES.—In carrying out this section, the Administrator shall seek opportunities to assist—

(1) in the development of commercial applications potentially available from the remote sensing industry; and

(2) State, local, regional, and tribal agencies in applying remote sensing and other geospatial information technologies for growth management.

(d) DURATION.—Assistance for a pilot project under subsection (a) shall be provided for a period not to exceed 3 years.

(e) REPORT.—Each recipient of a grant under subsection (a) shall transmit a report to the Administrator on the results of the pilot project within 180 days of the completion of that project.

(f) WORKSHOP.—Each recipient of a grant under subsection (a) shall, not later than 180 days after the completion of the pilot project, conduct at least one workshop for potential users to disseminate the lessons learned from the pilot project as widely as feasible.

(g) REGULATIONS.—The Administrator shall issue regulations establishing application, selection, and implementation procedures for pilot projects, and guidelines for reports and workshops required by this section.

SEC. 5. PROGRAM EVALUATION.

(a) ADVISORY COMMITTEE.—The Administrator shall establish an advisory committee, consisting of individuals with appropriate expertise in State, local, regional, and tribal agencies, the university research community, and the remote sensing and other geospatial information industry, to monitor the program established under section 4. The advisory committee shall consult with the Federal Geographic Data Committee and other appropriate industry representatives and organizations. Notwithstanding section 14 of the Federal Advisory Committee Act, the advisory committee established under this subsection shall remain in effect until the termination of the program under section 4.

(b) EFFECTIVENESS EVALUATION.—Not later than December 31, 2009, the Administrator shall transmit to the Congress an evaluation of the effectiveness of the program established under section 4 in exploring and promoting the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs. Such evaluation shall have been conducted by an independent entity.

SEC. 6. DATA AVAILABILITY.

The Administrator shall ensure that the results of each of the pilot projects completed under section 4 shall be retrievable through an electronic, Internet-accessible database.

SEC. 7. EDUCATION.

The Administrator shall establish an educational outreach program to increase awareness at institutions of higher education and State, local, regional, and tribal agencies of the potential applications of remote sensing and other geospatial information.

SEC. 8. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Administrator $15,000,000 for each of the fiscal years 2006 through 2010 to carry out this Act.

II. PURPOSE OF THE BILL

The purpose of H.R. 426 is to encourage the development and integrated use by the public and private sectors of remote sensing and other geospatial information, and for other purposes.

III. BACKGROUND AND NEED FOR THE LEGISLATION

Remote sensing and other geospatial information can be particularly useful to State, local, regional and tribal agencies, as well as the private sector, with respect to decision-making in areas such as land-use planning, agriculture, weather forecasting, and forest management. To date, the full range of applications for commercial and civil remote sensing and other forms of geospatial information has not been adequately explored by the public and private sectors.

IV. SUMMARY OF HEARINGS

On May 20, 2002, the Subcommittee on Space and Aeronautics held a field hearing in Kansas City, Kansas to explore ways in which data from space-based and aircraft remote sensing systems can help with land use planning, agriculture, severe weather and natural disaster management, and transportation planning. Witnesses included: Mr. Ronald Birk, Director of the Applications Division, Office of Earth Science, National Aeronautics and Space Administration (NASA); Dr. Edward Martinko, Director of Kansas Biological Survey and Director of Kansas Applied Remote Sensing (KARS) Program, University of Kansas; Dr. Kevin Price, Associate Director of Kansas Applied Remote Sensing Program, University of Kansas; and Dr. Ray Williamson, Research Professor, Space Policy Institute, George Washington University.

Mr. Birk discussed the nature and scope of NASA's Earth science applications program. Noting that 14 NASA Earth science spacecraft are already in orbit out of a planned 26 missions, he discussed the challenges associated with trying systematically to get the data from those missions into the hands of those who can best use it for the public good. As examples of the ways in which the data has been and is being used, Mr. Birk discussed applications to wildfire monitoring, aviation weather prediction and cockpit visualization, precision farming, and flood plain mapping. He also entered into the record NASA's 10-year Applications Strategy.

In his testimony, Dr. Martinko outlined some of the major activities and accomplishments of the KARS Program, which has been in existence for almost 30 years. He noted that the KARS Program has worked extensively with state and local government agencies throughout its history and has worked with private enterprise over the last 6 years. Development of decision support tools for emergency response, as well as remote sensing applications for urban planning, flood and crop damage mapping, invasive plant monitoring, and water resources management are among the activities pursued by the KARS program.

Dr. Price stated that satellite imagery available over the last 20 years has enabled him to observe changes in vegetation and land use that would be difficult, if not impossible, to observe at ground

level. In his testimony, he focused on the ways in which satellite imagery is being used to monitor agricultural yield and production. He discussed the use of satellite data to monitor the progress of all the vegetation in the U.S. at a resolution of every 250 acres. He also noted that applied remote sensing research is an important link in the technology transfer cycle between satellite remote sensing systems and public and private sector applications of that data.

Dr. Williamson testified about the benefits for state and local governments of Federal investments in Earth observations from space. Among the benefits cited and discussed were improvements in weather and climate forecasting, severe weather warnings, transportation planning and monitoring, agricultural planning, and the security of the Nation's critical infrastructure. Dr. Williamson also discussed the complex process by which research leads to applications beneficial to end-users, and argued that it is not a simple linear process.

V. COMMITTEE ACTIONS

On June 28, 2001, Rep. Mark Udall and Rep. James Greenwood introduced H.R. 2426, the Remote Sensing Applications Act of 2001, a bill to encourage the development and integrated use by the public and private sectors of remote sensing and other geospatial information. Following a decision by the leadership of the Committee on Science to favorably report the bill, the House agreed to suspend the rules and pass H.R. 2426 as amended on October 1, 2002.

On March 13, 2003, Rep. Mark Udall introduced H.R. 1292, the Remote Sensing Applications Act of 2003, a bill to encourage the development and integrated use by the public and private sectors of remote sensing and other geospatial information.

The Space and Aeronautics Subcommittee met on October 8, 2003 to consider the bill. The bill was agreed to by voice vote. Ranking Member Gordon moved that the Subcommittee favorably report the bill, H.R. 1292, to the Full Committee and that the staff be instructed to make all necessary technical and conforming changes to the bill in accordance with the recommendations of the Subcommittee. With a quorum present, the motion was agreed to by voice vote.

On February 4, 2004, the Committee on Science considered H.R. 1292, as reported by the Subcommittee. An en bloc amendment was offered by Mr. Udall to change several dates specified in the bill. The amendment was agreed to by voice vote. An amendment was offered by Mr. Weldon to: (1) include a finding about the utility of remote sensing and geospatial technologies for wildland fire management; (2) direct the NASA Administrator to seek opportunities to assist in utilizing capabilities for wildland fire observation; (3) direct NASA to submit to Congress a report on how agencies are implementing recommendations contained in a Government Accountability Office report on wildland fire management. The amendment was agreed to by voice vote.

The motion to adopt the bill, as amended, was agreed to by voice vote. Ranking Member Gordon moved that the Committee favorably report the bill, H.R. 1292, as amended, to the House with the recommendation that the bill, as amended, do pass and that staff be instructed to make technical and conforming changes to the bill

as amended and prepare the legislative report and that the Chairman take all necessary steps to bring the bill before the House for consideration. With a quorum vote present, the motion was agreed to by a voice vote. The Committee on Science filed a Committee Report on February 18, 2004. No further action occurred on H.R. 1292 in the 108th Congress.

On January 26, 2005, Rep. Udall introduced H.R. 426, the Remote Sensing Applications Act of 2005, a bill to encourage the development and integrated use by the public and private sectors of remote sensing and other geospatial information.

The Space and Aeronautics Subcommittee discharged the bill on May 16, 2005. On May 17, 2005, the Committee on Science considered H.R. 426. An en bloc amendment was offered by Mr. Udall to change the findings of the bill to include references to the benefits of commercial remote sensing data. The amendment also altered the grant program to ensure that grants are awarded preferentially to those potential recipients that, among other things, make use of (1) commercial data sets, including high resolution commercial satellite imagery, (2) existing public data sets where commercial data sets are not available or applicable, or (3) the fusion of such data sets. The amendment also defined "high resolution" to mean resolution better than five meters. Finally, the amendment struck Section 8 of the bill, which required a study of the effect of remote sensing imagery costs on potential State, local, regional, and tribal agency applications of remote sensing data. The amendment was agreed to by voice vote.

The motion to adopt the bill, as amended, was agreed to by voice vote. Ranking Member Gordon moved that the Committee favorably report the bill, H.R. 426, as amended, to the House with the recommendation that the bill as amended do pass and that staff be instructed to make technical and conforming changes to the bill as amended and prepare the legislative report and that the Chairman take all necessary steps to bring the bill before the House for consideration. With a quorum vote present, the motion was agreed to by a voice vote.

VI. SUMMARY OF MAJOR PROVISIONS OF THE BILL, AS AMENDED

The bill establishes a grant program within NASA for competitively awarded pilot projects to explore the integrated use of sources of remote sensing and other sources of geospatial information to address State, local, regional and tribal agency needs. It authorizes $15,000,000 for each of the fiscal years 2006 through 2010.

VII. SECTION-BY-SECTION ANALYSIS

Section 1. Short title

Remote Sensing Applications Act of 2005.

Section 2. Findings

Specifies several Congressional findings regarding remote sensing applications, including the following: the full range of applications of commercial and civil remote sensing and other forms of geospatial information to meet public sector requirements has not been adequately explored or exploited; remote sensing and other geospatial information can be particularly useful to State, local, re-

gional, and tribal agencies in the area of urban planning, especially in their efforts to plan for and manage the impacts of growth, development, and sprawl, as well as in environmental impact and disaster relief planning and management; and NASA, in conjunction with other agencies, can play a unique role in stimulating the development of the remote sensing and other geospatial information sectors through pilot projects to demonstrate the value of integrating government and commercial remote sensing data with geographic information systems and satellite-based positioning data to provide useful applications products.

Section 3. Definitions

Defines several terms used throughout the bill. Defines the term 'geospatial information' to mean knowledge of the nature and distribution of physical and cultural features on the landscape based on analysis of data from airborne or spaceborne platforms or other types and sources of data.

Section 4. Pilot projects to encourage public sector applications

Directs the NASA Administrator to establish a program of competitively awarded grants for pilot projects to explore the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs. Specifies certain preferences in awarding such grants, to include making use of commercial data sets, including high resolution commercial satellite imagery and derived satellite data products, existing public data sets where commercial data sets are not available or applicable, or the fusion of such data sets. Directs NASA to seek opportunities to assist in the development of commercial applications and to assist State, local, regional, and tribal agencies in applying these technologies for growth management and wildland fire observation. Restricts assistance for such pilot projects to no more than 3 years. Requires each recipient of such a grant to report to NASA on the results of the pilot project and conduct a workshop for potential users to disseminate lessons learned from the project. Authorizes the Administrator to issue regulations for the conduct of the pilot projects.

Section 5. Program evaluation

Directs the NASA Administrator to establish an advisory committee to monitor the program established under section 4. Directs the Administrator to transmit to the Congress an evaluation of the program established under section 4 by an independent entity no later than December 31, 2009.

Section 6. Data availability

Directs the NASA Administrator to ensure that the results of each of the pilot projects completed under section 4 are retrievable through an electronic, Internet-accessible database.

Section 7. Education

Directs the Administrator to establish an educational outreach program to increase awareness at institutions of higher education and State, local, regional, and tribal agencies of the potential applications of remote sensing and other geospatial information.

Section 8. Authorization of appropriations

Authorizes to be appropriated to the Administrator $15,000,000 for each of the fiscal years 2006 through 2010.

VIII. COMMITTEE VIEWS

Commercial satellite imagery and other types of remote sensing and geospatial information play a key role in advancing U.S. national, economic, and homeland security interests. However, the full range of remote sensing and geospatial applications has not yet been explored at the national level and especially at the State, local, and regional levels. The Committee stresses the importance of using of commercial data sets, including high resolution commercial satellite imagery, when available and applicable.

The Committee expects the Advisory Committee established in Section 5(a) to establish specific and quantifiable goals for the program so that the effectiveness of the program may later be evaluated by the independent entity referred to in Section 5(b).

In implementing educational outreach programs prescribed in Section 7, the Committee believes the Administrator should include the use of existing NASA-funded centers specializing in workforce development for geospatial applications.

IX. COST ESTIMATE

A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act of 1974 has been timely submitted to the Committee on Science prior to the filing of this report and is included in Section X of this report pursuant to House rule XIII, clause 3(c)(3).

H.R. 426 does not contain new budget authority, credit authority, or changes in revenues or tax expenditures. Assuming that the sums authorized under the bill are appropriated, H.R. 426 does authorize additional discretionary spending, as described in the Congressional Budget Office report on the bill, which is contained in Section X of this report.

X. CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

H.R. 426—Remote-Sensing Applications Act of 2005

Summary: H.R. 426 would authorize the appropriation of $15 million a year over the 2006–2010 period for a new program of the National Aeronautics and Space Administration (NASA) to encourage the use of geospatial and remote-sensing data by state, local, and tribal governments. The bill would authorize grants to demonstrate how such data could be used for land-use planning, environmental impact evaluation, and other policy analysis. In addition, the bill would require NASA to establish an advisory committee to monitor the program and an educational outreach program to promote remote-sensing applications.

Assuming appropriation of the authorized amounts, CBO estimates that implementing this bill would cost about $60 million over the 2006–2010 period. Enacting H.R. 426 would not affect direct spending or revenues.

H.R. 426 contains no intergovernmental or private-sector mandates as defined by the Unfunded Mandates Reform Act (UMRA);

any costs to state, local, or tribal governments would result from complying with conditions of federal assistance.

Estimated cost to the Federal Government: The estimated budgetary impact of H.R. 426 is shown in the following table. For this estimate, CBO assumes that the amounts authorized will be appropriated near the beginning of each fiscal year and that outlays will follow historical patterns or such activities. The cost of this legislation fall within budget function 250 (general science, space, and technology.

	By fiscal year, millions of dollars—				
	2006	2007	2008	2009	2010
CHANGES IN SPENDING SUBJECT TO APPROPRIATION					
Authorized Level	15	15	15	15	15
Estimated Outlays	4	11	14	15	15

Intergovernmental and private-sector impact: H.R. 426 contains no intergovernmental or private-sector mandates as defined by UMRA. The bill would benefit eligible state, local, and tribal governments by authorizing $15 million per year, for fiscal years 2006 through 2010, for them to apply remote-sensing and other geospatial information technologies for growth management. Any costs they incur would result from complying with conditions of federal assistance.

Estimate prepared by: Federal Costs: Mike Waters. Impact on State, Local, and Tribal Governments: Lisa Ramirez-Branum. Impact on the Private Sector: Jean Talarico.

Estimate approved by: Peter H. Fontaine, Deputy Assistant Director for Budget Analysis.

XI. COMPLIANCE WITH PUBLIC LAW 104–4

H.R. 426 contains no unfunded mandates.

XII. COMMITTEE OVERSIGHT FINDINGS AND RECOMMENDATIONS

The Committee on Science's oversight findings and recommendations are reflected in the body of this report.

XIII. STATEMENT ON GENERAL PERFORMANCE GOALS AND OBJECTIVES

Pursuant to clause (3)(c) of House rule XIII, the goal of H.R. 426 is to increase the use of government and commercial remote sensing capabilities and other sources of geospatial information to address State, local, regional, and tribal needs.

XIV. CONSTITUTIONAL AUTHORITY STATEMENT

Article I, section 8 of the Constitution of the United States grants Congress the authority to enact H.R. 426.

XV. FEDERAL ADVISORY COMMITTEE STATEMENT

The functions of the advisory committee established by H.R. 426 are not currently being nor could they be performed by one or more agencies or by enlarging the mandate of another existing advisory committee.

XVI. CONGRESSIONAL ACCOUNTABILITY ACT

The Committee finds that H.R. 426 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Public Law 104–1).

XVII. STATEMENT ON PREEMPTION OF STATE, LOCAL, OR TRIBAL LAW

This legislation is not intended to preempt any state, local, or tribal law.

XVIII. CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

This legislation does not amend any existing Federal statute.

XIX. COMMITTEE RECOMMENDATIONS

On May 17, 2005, a quorum being present, the Committee on Science favorably reported H.R. 426, the Commercial Remote Sensing Applications Act of 2005, by a voice vote, and recommended its enactment.

XX. PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.R. 426, REMOTE SENSING APPLICATIONS ACT OF 2005

TUESDAY, MAY 17, 2005

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to call, at 10:08 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert [Chairman of the Committee] presiding.

Chairman BOEHLERT. I want to welcome everyone here today for this markup of bills concerning the heavens and the Earth and to the agencies that explore them, NOAA and NASA.

Now let me just say this before I give you the rest of this wonderful statement.

The Committee on Science will come to order. Pursuant to notice, the Committee on Science meets to consider the following measures: H.R. 50, *National Oceanic and Atmospheric Administration Act;* H.R. 2363, *To establish a Science and Technology Scholarship Program to award scholarships to recruit and prepare students for careers in the National Weather Service and in the National Oceanic and Atmospheric Administration marine research, atmospheric research, and satellite programs;* H.R. 426, *Remote Sensing Applications Act of 2005,* and H.R. 1022, the *George E. Brown, Jr. Near-Earth Object Survey Act.*

I ask unanimous consent for the authority to recess the Committee at any point during consideration of these matters, and without objection, it is so ordered.

We will now proceed with the markup beginning with the opening statements, and I will continue mine.

The main bill before us today is the *NOAA Organic Act* introduced by Dr. Ehlers, which we had initially planned to markup last week. This bill will give NOAA a firm legislative grounding, something that was called for by the Ocean Commission, among others. The Administration has also called for an Organic Act for NOAA.

But our bill will do more than merely found NOAA into law. It will raise the profile of science at NOAA and improve its management. The bill also will greatly improve oversight of the agency by ensuring that Congress and the public get the information needed to evaluate NOAA's organizational structure, facilities plans, budgeting, and satellite programs. This is a solid bill that will strengthen the agency.

And now we look forward to working with the Resources Committee, which shares jurisdiction over portions of NOAA, to get this bill to the Floor. Also related to NOAA, we will take up Congressman Rohrabacher's bill to create a Scholarship for Service Program at NOAA. And he is a real leader on that effort, and we applaud that. We have done the same thing with NASA and the Department of Energy. Service scholarships are a great way to entice students into science, math, and engineering while also helping the Federal Government develop the workforce it will need. These scholarships have been championed tirelessly by Congressman Rohrabacher, and I congratulate him for that.

We are running the scholarship program through as a separate bill, because specific program authorizations generally are not part of agency Organic Acts. We will also take up two bills related to space today. These were last-minute additions to today's roster, which is something we have generally avoided on this committee. But this seemed like an opportune time to move these bills, and we continue to work on them through manager's amendments on the Floor.

Mr. Udall's bill, which the Committee also passed last Congress, concerns remote sensing. Mr. Udall will offer an amendment that will take care of concerns raised by companies in the remote sensing data business, concerns that have stymied progress on this bill in the past. I know that Mr. Bonner and I, perhaps some others, have some further ideas for perfecting the bill, and we will work on those as the bill moves forward.

Mr. Rohrabacher's bill focuses on near-Earth objects, a subject that has long concerned him and has gotten quite a bit of publicity lately. Congressman Rohrabacher has helped us all understand that asteroids may present a real threat to Earth and that we need to pay greater attention to them. All of these bills will improve our lives through increasing our understanding of the Earth, how it works, and what may threaten it.

As usual, these bills represent a bipartisan effort, and I take pride in that. I look forward to their passage.

The Chair recognizes Mr. Gordon.

Mr. Gordon.

[The prepared statement of Chairman Boehlert follows:]

PREPARED STATEMENT OF CHAIRMAN SHERWOOD L. BOEHLERT

I want to welcome everyone here today for this markup of bills concerning the heavens and the Earth—and to the agencies that explore them, NOAA and NASA.

The main bill before us today is the *NOAA Organic Act,* introduced by Dr. Ehlers, which we had initially planned to mark up last week. This bill will give NOAA a firm legislative grounding, something that was called for by the Ocean Commission among others. The Administration has also called for an Organic Act for NOAA.

But our bill will do more than merely found NOAA in law. It will raise the profile of science at NOAA and improve its management. The bill also will greatly improve oversight of the agency by ensuring that Congress—and the public—get the information needed to evaluate NOAA's organizational structure, facilities plans, budgeting and satellite programs. This is a solid bill that will strengthen the agency.

And now we look forward to working with the Resources Committee, which shares jurisdiction over portions of NOAA, to get this bill to the Floor.

Also related to NOAA, we will take up Congressman Rohrabacher's bill to create a scholarship for service program at NOAA, as we have at NASA and the Department of Energy. Service scholarships are a great way to entice students into science, math and engineering while also helping the Federal Government develop the work-

force it will need. These scholarships have been championed tirelessly by Congressman Rohrabacher, and I congratulate him for that.

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All of these bills will improve our lives through increasing our understanding of the Earth, how it works and what may threaten it. As usual, these bills represent a bipartisan effort. I look forward to their passage.

Mr. Gordon.

Mr. GORDON. Thank you, Mr. Chairman. You have summed up what we are going to do this morning very well. I just want to concur that it is a good idea, I think, to take up these additional three bills today, and I want to give my thanks to the staff on both sides for the good cooperative work that they have done over the last week in trying to bring NOAA together as well as these three bills, and I look forward to the markup.

And I yield my time back.

[The prepared statement of Mr. Gordon follows:]

PREPARED STATEMENT OF REPRESENTATIVE BART GORDON

I want to thank the Chairman for scheduling this markup.

Originally we were to just take up H.R. 50 today, but I think it is to the advantage of our Members that we will expeditiously take up three other bills, all of which can probably move on suspension on the Floor.

In addition to the NOAA organic act, I am especially pleased to see the Remote Sensing Act move through Committee. We have dealt with this in past Congresses and I am happy the Chairman agrees that we can move that bill forward today.

I don't want to delay the process here this morning with an extensive preliminary statement, but let me take a moment to thank staff on both sides of the aisle for their work to handle these bills. I think the Members have been well served through their efforts.

With that, I yield back, Mr. Chairman.

Chairman BOEHLERT. Thank you very much.

Without objection, Members may place statements in the record at this point.

We will now consider H.R. 426, *Remote Sensing Applications Act of 2005*.

I recognize Mr. Gordon to present any remarks he might have.

Mr. GORDON. I yield to my friend from Colorado.

Mr. UDALL. I want to thank the Ranking Member for yielding.

Mr. Chairman, in the spirit of moving the legislation along, I would ask unanimous consent that my entire statement be included in the record.

Chairman BOEHLERT. Without objection, because we are looking forward to reading it.

Mr. UDALL. And I know it is at the top of your list, and I appreciate your interest.

This bill passed the Committee in the 107th Congress. It passed the Committee in the 108th Congress. It provides for all of the geospatial information that we are generating to be more widely disseminated. It has applications for land use planning, for agricultural interests, and for homeland security. I commend the bill to the Committee.

I have an en bloc amendment that perfects some of the legislation, and you are looking for even greater perfection downstream.

But with that, I would yield back my time.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

First, I would like to thank the Chairman for making it possible to mark up this bill today, and I look forward to working with him and my colleagues from both sides of the aisle to see my legislation through to passage in both chambers.

I introduced this bill as H.R. 1292 in the 107th Congress, and the House passed it in 2002. In the 108th Congress, the Science Committee marked up this bill, but it did not see Floor action last year. I am hopeful that the third time is the charm.

I first introduced this bill to address a real problem we have in Colorado, the problem of excess growth and sprawl. My goal was to point to a way to utilize the resources of the Federal Government to help foster wise community planning and management at the local level. However, I believe that this legislation addresses important needs in all fifty states—not just Colorado.

As a Member of the House Science Committee and the Space and Aeronautics Subcommittee, it made sense to me to look for ways to help communities grow in a smarter way through the use of technology.

One new space-age tool is the use of satellites to provide images of the Earth's surface. We now have technology—using geospatial data from satellites—that can produce very accurate maps that show information about vegetation, wildlife habitat, flood plains, transportation corridors, soil types, and many other things.

By giving State and local governments and communities greater access to geospatial data from commercial sources and federal agencies such as NASA, I believe that the Federal Government can help bring valuable—and powerful—informational planning resources to the table.

H.R. 426 would facilitate this transfer of information. The bill would establish in NASA a program of grants for competitively awarded pilot projects. The purpose would be to explore the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs.

State and local governments and communities can use geospatial information in a variety of applications—in such areas as urban land-use planning, coastal zone management and erosion control, transportation corridors, environmental planning, and agricultural and forest management.

Another potential application that has garnered much attention since 9–11 is the use of geospatial technology to bolster our homeland security.

Emergency management has always been an important responsibility of State and local governments. But in the aftermath of the terrorist attacks, the scope of this responsibility has broadened. Geospatial technology can help states and localities identify the location, nature, and scope of potential vulnerabilities and the impact of potential hazards, as well as how to respond to events and recover from them.

Certainly it is important that we continue to add to our database of available geospatial information—*more* information is always better than less. But we also need to get maximum use of information we already have at hand. That is the need this bill would address.

State and local officials are becoming more familiar with the uses of geospatial technology for various planning purposes. However, there is a need for federal agencies such as NASA, which has been pioneering the uses of satellite remote sensing technologies, to work with State and local organizations to demonstrate how remote sensing and other geospatial data can offer a cost-effective planning and assessment tool.

I'm pleased there is bipartisan co-sponsorship of the bill and that it has earned the endorsement of a number of important national organizations. These supporters of H.R. 426 understand the importance of targeting geospatial information at the places where it will have the greatest impact—the local and regional levels.

The *Remote Sensing Applications Act* can help begin to bridge the gap between established and emerging technology solutions and the problems and challenges that

State and local communities face regarding growth management, homeland security, forest fire management, and other issues.

This bill will be welcomed by states and localities nationwide. I urge its adoption.

Chairman BOEHLERT. I thank the gentleman.

I ask unanimous consent that the bill is considered as read and open to amendment at any point and that Members proceed with the amendments in the order of the roster. Without objection, so ordered.

The first amendment on the roster is offered by the gentleman from Colorado.

Are you ready to proceed?

Mr. UDALL. I am. I have an amendment at the desk, Mr. Chairman.

Chairman BOEHLERT. The Clerk will report.

Ms. TESSIERI. Amendment to H.R. 426——

Mr. UDALL. I would ask that the reading be dispensed with, Mr. Chairman.

Chairman BOEHLERT. The gentleman is recognized.

Mr. UDALL. Mr. Chairman, this amendment makes minor adjustments to ensure that the State and local governments have access to this data from commercial sources in addition to federal agencies. The President issued a policy in 2003 directing government agencies to rely, to the maximum practical extent, on U.S. commercial remote sensing space capabilities. The amendment highlights this policy in the Commercial Space Act and encourages the development of the commercial space industry.

I would urge adoption of the amendment, and I would also ask to put the entire statement about the amendment in the record.

Chairman BOEHLERT. Without objection, so ordered.

[The prepared statement of Mr. Udall follows:]

PREPARED STATEMENT OF REPRESENTATIVE MARK UDALL

Mr. Chairman, I have an amendment at the desk.

The commercial geospatial imaging industry has grown into a reliable and important provider of remote sensing data useful for defense, agriculture, forestry, growth planning, and much more.

This industry plays an important role in the dissemination of this data and the advancement of corresponding technologies.

My amendment makes minor adjustments to ensure that State and local government have access to this data from commercial sources in addition to federal agencies.

In 2003 the President issued a policy directing government agencies to "rely to the maximum practical extent on U.S. commercial remote sensing space capabilities."

My amendment highlights this policy and the *Commercial Space Act* that encourages the development of the commercial space industry in the United States.

With this amendment, my bill supports the President's policy, the commercial imaging industry, and encourages greater access to the data it provides to local and State governments.

With that, Mr. Chairman, I urge the adoption of this amendment.

Chairman BOEHLERT. And just let the Chair say that it is a wonderful amendment, and I am pleased to enthusiastically support it.

Is there any further discussion on the amendment? If no, the vote occurs on the amendment. All in favor, say aye. Opposed, no. The ayes have it, and the amendment is agreed to.

Are there any other amendments? Hearing none, the vote is on the bill H.R. 426, *Remote Sensing Applications Act of 2005,* as

amended. All of those in favor, say aye. Opposed, no. In the opinion of the Chair, the ayes have it.

I recognize Mr. Gordon to offer a motion.

Mr. GORDON. Mr. Chairman, I move that the Committee favorably report H.R. 426, as amended, to the House with the recommendation that the bill, as amended, do pass. Furthermore, I move that the staff be instructed to prepare the legislative report and make necessary technical and conforming changes and that the Chairman take all necessary steps to bring the bill before the House for consideration.

Chairman BOEHLERT. The question is on the motion to report the bill favorably. Those in favor of the motion will signify by saying aye. Opposed, no. The ayes have it, and the bill is favorably reported.

Without objection, the motion to reconsider is laid upon the table.

I move that Members have two subsequent calendar days in which to submit supplemental, minority, or additional views on the measure. I move pursuant to Clause 1 of Rule 22 of the Rules of the House of Representatives that the Committee authorizes the Chairman to offer such motions as may be necessary in the House to adopt and pass H.R. 426, the *Remote Sensing Applications Act of 2005,* as amended. Without objection, so ordered.

I want to thank everybody for participating and for your attendance and indulgence.

This concludes our Committee markup.

[Whereupon, at 11:15 a.m., the Committee was adjourned.]

Appendix:

H.R. 426, SECTION-BY-SECTION ANALYSIS, SUMMARY OF H.R. 426, AMENDMENT ROSTER, SUMMARY OF AMENDMENT OFFERED BY MR. UDALL

I

109TH CONGRESS
1ST SESSION

H. R. 426

To encourage the development and integrated use by the public and private sectors of remote sensing and other geospatial information, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 26, 2005

Mr. UDALL of Colorado introduced the following bill; which was referred to the Committee on Science

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A BILL

To encourage the development and integrated use by the public and private sectors of remote sensing and other geospatial information, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Remote Sensing Applications Act of 2005".

SEC. 2. FINDINGS.

The Congress finds that—

(1) although urban land use planning, growth management, and other functions of State, local, re-

gional, and tribal agencies are rightfully within their jurisdiction, the Federal Government can and should play an important role in the development and demonstration of innovative techniques to improve comprehensive land use planning and growth management;

(2) the United States is making a major investment in acquiring remote sensing and other geospatial information from both governmental and commercial sources;

(3) while much of the data is being acquired for scientific and national security purposes, it also can have important applications to help meet societal goals;

(4) it has already been demonstrated that Landsat data and other earth observation data can be of enormous assistance to Federal, State, local, regional, and tribal agencies for urban land use planning, coastal zone management, natural and cultural resource management, and disaster monitoring;

(5) remote sensing, coupled with the emergence of geographic information systems and satellite-based positioning information, offers the capability of developing important new applications of inte-

grated sets of geospatial information to address societal needs;

(6) the full range of applications of remote sensing and other forms of geospatial information to meeting public sector requirements has not been adequately explored or exploited;

(7) the Land Remote Sensing Policy Act of 1992, Presidential Decision Directive 23 of 1994, and the Commercial Space Act of 1998 all support and promote the development of United States commercial remote sensing capabilities;

(8) many State, local, regional, tribal, and Federal agencies are unaware of the utility of remote sensing and other geospatial information for meeting their needs, even when research has demonstrated the potential applications of that information;

(9) remote sensing and other geospatial information can be particularly useful to State, local, regional, and tribal agencies in the area of urban planning, especially in their efforts to plan for and manage the impacts of growth, development, and sprawl, as well as in environmental impact and disaster relief planning and management;

(10) the National Aeronautics and Space Administration, in coordination with other agencies,

can play a unique role in demonstrating how data acquired for scientific purposes, when combined with other data sources and processing capabilities, can be applied to assist State, local, regional, and tribal agencies and the private sector in decisionmaking in such areas as agriculture, weather forecasting, and forest management; and

(11) in addition, the National Aeronautics and Space Administration, in conjunction with other agencies, can play a unique role in stimulating the development of the remote sensing and other geospatial information sector through pilot projects to demonstrate the value of integrating governmental and commercial remote sensing data with geographic information systems and satellite-based positioning data to provide useful applications products.

SEC. 3. DEFINITIONS.

In this Act—

(1) the term "Administrator" means the Administrator of the National Aeronautics and Space Administration;

(2) the term "geospatial information" means knowledge of the nature and distribution of physical and cultural features on the landscape based on

analysis of data from airborne or spaceborne platforms or other types and sources of data; and

(3) the term "institution of higher education" has the meaning given that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

SEC. 4. PILOT PROJECTS TO ENCOURAGE PUBLIC SECTOR APPLICATIONS.

(a) IN GENERAL.—The Administrator shall establish a program of grants for competitively awarded pilot projects to explore the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs.

(b) PREFERRED PROJECTS.—In awarding grants under this section, the Administrator shall give preference to projects that—

(1) make use of existing public or commercial data sets;

(2) integrate multiple sources of geospatial information, such as geographic information system data, satellite-provided positioning data, and remotely sensed data, in innovative ways;

(3) include funds or in-kind contributions from non-Federal sources;

(4) involve the participation of commercial entities that process raw or lightly processed data, often merging that data with other geospatial information, to create data products that have significant value added to the original data; and

(5) taken together demonstrate as diverse a set of public sector applications as possible.

(c) OPPORTUNITIES.—In carrying out this section, the Administrator shall seek opportunities to assist—

(1) in the development of commercial applications potentially available from the remote sensing industry; and

(2) State, local, regional, and tribal agencies in applying remote sensing and other geospatial information technologies for growth management.

(d) DURATION.—Assistance for a pilot project under subsection (a) shall be provided for a period not to exceed 3 years.

(e) REPORT.—Each recipient of a grant under subsection (a) shall transmit a report to the Administrator on the results of the pilot project within 180 days of the completion of that project.

(f) WORKSHOP.—Each recipient of a grant under subsection (a) shall, not later than 180 days after the completion of the pilot project, conduct at least one workshop

for potential users to disseminate the lessons learned from the pilot project as widely as feasible.

(g) REGULATIONS.—The Administrator shall issue regulations establishing application, selection, and implementation procedures for pilot projects, and guidelines for reports and workshops required by this section.

SEC. 5. PROGRAM EVALUATION.

(a) ADVISORY COMMITTEE.—The Administrator shall establish an advisory committee, consisting of individuals with appropriate expertise in State, local, regional, and tribal agencies, the university research community, and the remote sensing and other geospatial information industry, to monitor the program established under section 4. The advisory committee shall consult with the Federal Geographic Data Committee and other appropriate industry representatives and organizations. Notwithstanding section 14 of the Federal Advisory Committee Act, the advisory committee established under this subsection shall remain in effect until the termination of the program under section 4.

(b) EFFECTIVENESS EVALUATION.—Not later than December 31, 2009, the Administrator shall transmit to the Congress an evaluation of the effectiveness of the program established under section 4 in exploring and promoting the integrated use of sources of remote sensing

and other geospatial information to address State, local, regional, and tribal agency needs. Such evaluation shall have been conducted by an independent entity.

SEC. 6. DATA AVAILABILITY.

The Administrator shall ensure that the results of each of the pilot projects completed under section 4 shall be retrievable through an electronic, Internet-accessible database.

SEC. 7. EDUCATION.

The Administrator shall establish an educational outreach program to increase awareness at institutions of higher education and State, local, regional, and tribal agencies of the potential applications of remote sensing and other geospatial information.

SEC. 8. COST SENSITIVITY STUDY.

The Administrator shall conduct a study of the effect of remote sensing imagery costs on potential State, local, regional, and tribal agency applications. The study shall identify applications that are likely to be most affected by reductions in the cost of remote sensing imagery. Not later than 2 years after the date of the enactment of this Act, the Administrator shall transmit to the Congress the results of the study conducted under this section.

SEC. 9. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Administrator $15,000,000 for each of the fiscal years 2006 through 2010 to carry out this Act.

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SECTION-BY-SECTION OF H.R. 426,
REMOTE SENSING APPLICATIONS ACT

Section 1. Short title

"Remote Sensing Applications Act of 2005."

Section 2. Findings

Specifies several findings of the Congress regarding remote sensing applications, including the following: the full range of applications of remote sensing and other forms of geospatial information to meet public sector requirements have not been adequately explored or exploited; such information can be particularly useful to State, local, regional, and tribal agencies in the area of urban planning, especially in their efforts to plan for and manage the impacts of growth, development, and sprawl, as well as in environmental impact and disaster relief planning and management; and NASA, in conjunction with other agencies, can play a unique role in stimulating the development of the remote sensing and other geospatial information sectors through pilot projects to demonstrate the value of integrating government and commercial remote sensing data with geographic information systems and satellite-based positioning data to provide useful applications products.

Section 3. Definitions

Defines several terms used throughout the bill. Defines the term 'geospatial information' to mean knowledge of the nature and distribution of physical and cultural features on the landscape based on analysis of data from airborne or spaceborne platforms or other types and sources of data.

Section 4. Pilot projects to encourage public sector applications

Directs the NASA Administrator to establish a program of competitively awarded grants for pilot projects to explore the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs. Specifies certain preferences in awarding such grants. Directs NASA to seek opportunities to assist in the development of commercial applications and to assist State, local, regional, and tribal agencies in applying these technologies for growth management and wildland fire observation. Restricts assistance for such pilot projects to no more than three years. Requires each recipient of such a grant to report to NASA on the results of the pilot project and conduct a workshop for potential users to disseminate lessons learned from the project. Authorizes the Administrator to issue regulations for the conduct of the pilot projects.

Section 5. Program evaluation

Directs the NASA Administrator to establish an advisory committee to monitor the program established under section 4. Directs the Administrator to transmit to the Congress an evaluation of the program established under section 4 by an independent entity no later than December 31, 2009.

Section 6. Data availability

Directs the NASA Administrator to ensure that the results of each of the pilot projects completed under section 4 are retrievable through an electronic, Internet-accessible database.

Section 7. Education

Directs the Administrator to establish an educational outreach program to increase awareness at institutions of higher education and State, local, regional, and tribal agencies of the potential applications of remote sensing and other geospatial information.

Section 8. Cost sensitivity study

Directs the NASA Administrator to conduct a study of the effect of remote sensing imagery costs on potential State, local, regional, and tribal agency applications and to transmit the study to Congress not later than two years after the date of enactment.

Section 9. Report

Directs NASA to report to Congress not later than six months after enactment on how agencies are implementing the recommendations in a September, 2003 General Accounting Office report on the use of geospatial information in wildland fire management.

Section 10. Authorization of appropriations

Authorizes $15,000,000 for each of the fiscal years 2006 through 2010.

SUMMARY OF H.R. 426,
REMOTE SENSING APPLICATIONS ACT

The bill establishes a program within the National Aeronautics and Space Administration (NASA) of competitively-awarded grants for pilot projects that use government and commercial remote sensing capabilities and other sources of geospatial information to address State, local, regional and tribal agency needs. It authorizes $15,000,000 for each of the fiscal years 2006 through 2010 for the program.

COMMITTEE ON SCIENCE
FULL COMMITTEE MARKUP

May 17, 2005

AMENDMENT ROSTER

H.R. 426, Remote Sensing Applications Act of 2005
--Motion to adopt the bill, as amended: agreed to by a voice vote.
--Motion to report the bill, as amended: agreed to by a voice vote

No.	Sponsor	Description	Results
1.	Mr. Udall	En bloc amendment.	Adopted by a voice vote.

AMENDMENT TO H.R. 426

OFFERED BY MR. UDALL OF COLORADO

Page 2, line 16, strike "Landsat data" and insert "Landsat, commercial,".

Page 3, line 3, insert "commercial and civil" after "applications of".

Page 3, line 9, strike "and the Commercial Space Act of 1998" and insert "the Commercial Space Act of 1998, and the United States Commercial Remote Sensing Policy, issued by the President on April 25, 2003,".

Page 4, line 12, strike "sector" and insert "sectors".

Page 5, line 2, strike "and" at the end of paragraph (2).

Page 5, line 6, strike the period and insert "; and".

Page 5, after line 6, insert the following new paragraph:

(4) the term "high resolution" means resolution better than five meters.

Page 5, lines 17 and 18, amend paragraph (1) to read as follows:

(1) make use of commercial data sets, including high resolution commercial satellite imagery and derived satellite data products, existing public data sets where commercial data sets are not available or applicable, or the fusion of such data sets;

Page 8, lines 15 through 23, strike section 8 and renumber following section accordingly.



SUMMARY OF AN AMENDMENT OFFERED BY MR. UDALL
TO H.R. 462, REMOTE SENSING APPLICATIONS ACT

The amendment makes a number of changes to the findings of the bill to include references to the benefits of commercially remote sensing data.

It amends the grant program the bill creates in Section 4 to ensure that the Administrator gives preferential treatment in awarding grants to those potential recipients that, among other things, make use of (1) commercial data sets, including high resolution commercial satellite imagery, (2) existing public data sets where commercial data sets are not available or applicable, or (3) the fusion of such data sets.

The amendment defines "high resolution" to mean resolution better than five meters.

The amendment strikes Section 8 of the bill, which requires a study of the effect of remote sensing imagery costs on potential State, local, regional, and tribal agency applications of remote sensing data.