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THE WHITE HOUSE

WASHINGTON

November 1, 1990

MEMORANDUM FOR GOVERNOR SUNUNU

FROM: D. ALLAN BROMLEY *Allan*

SUBJECT: DEAN KAMEN

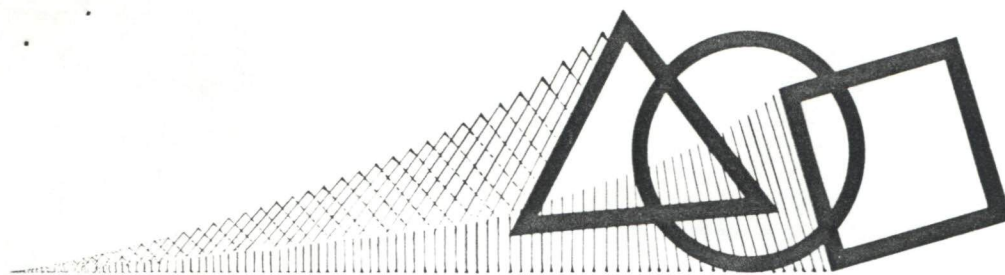
I have set up a meeting involving Dean Kamen as well as the Acting Director of NSF and NSF's Assistant Director for Education and Human Resources in my office this coming Monday afternoon to discuss his proposals for Manchester's development of a science center.

The National Science Teachers Association in no way influences NSF support of anything and I am a little surprised that any such impression should exist.

Bill Aldrich, the Executive Director of NSTA is away or I would have included him in the meeting. I have known him for a long time.

I will keep you informed.

cc: Bonnie Newman



FOUNDATION FOR INSPIRATION AND RECOGNITION OF SCIENCE AND TECHNOLOGY

October 29, 1990

Ms. Bonnie Newman
Assistant to the President
for Management & Administration
White House, West Wing
Washington, D.C. 20500

Dear Bonnie:

Thank you for taking the time to speak with me last week. As always, your perspective and advice are greatly appreciated.

Enclosed is a brief overview of the meeting we will have on November 5 in Washington with the NSTA. As you can see from the agenda, this meeting is really a "nuts and bolts" discussion of the feasibility of the NSTA move to New Hampshire, and the funding and building issues.

As we discussed yesterday, a great boost to our position at this meeting would exist if we were confident that we had a path to the National Science Foundation other than via the NSTA. Science Enrichment Encounters (SEE) is in its fourth year, and has entertained and instructed well over 100,000 New Hampshire visitors. On this basis, we feel that grants from the NSF for SEE and other FIRST Programs, may be appropriate. Obviously, however, knowing this before we approach the table at the NSTA meeting would be most advantageous.

Therefore, your suggestion that we meet with Dr. Bromley is most welcome. I would very much like to introduce the FIRST Project to him, and would appreciate any opportunity to meet. I am sure that we could get any number of "respectable" FIRST supporters, such as Ray Price, Governor Gregg, or Congressman Bob Smith, if you feel it is appropriate. Please let me know what I can do to make such an event happen.

Thank you again for your time, and for your continued support of the FIRST Project.

Respectfully,


Dean Kamen

Meeting with Bill Aldridge, Executive Director, NSTA
November 5 at NSTA Office in Washington, D.C.

Attending from Manchester:

Dean Kamen, FIRST (Foundation for Inspiration and Recognition of Science and Technology)
Richard Hodgkinson, President, Greater Manchester Development Corporation
Attorney Daniel Coolidge, FIRST
Dr. Vikki Howard, Project Director, FIRST

Background:

The Gruber Foundation, owners of the Pandora Building, offered the mill to the City of Manchester as a gift. The Pandora building is a mill in good condition of approximately 150,000 square feet.

The NSTA, FIRST, and the City of Manchester have had preliminary discussions about forming a cooperative venture utilizing the Pandora Building for:

- SEE
- FIRST
- NSTA meeting/conference center and publishing warehouse
- other related uses.

Total cost to rehabilitate these facilities will be approximately \$6 million, although a substantially smaller amount could allow initial occupancy.

Governor Gregg, Manchester Mayor Ray Wiecezorek, the Gruber Foundation, Amoskeag Industries, GMDC, and others have warmly endorsed the proposed project. The NSTA has not yet finalized its commitment, however, the President and the President-elect of the NSTA have attended various meetings and have shown substantial interest in supporting the FIRST Project. (Please see enclosed letters from Bill Aldridge, Executive Director of the NSTA.)

Purpose of the Meeting:

The purpose of the meeting is to get the NSTA to commit to the project now. The contingent from Manchester will indicate they bring the Pandora Building, tax-free operations for the NSTA, and the possibility of \$1 million in favorable loans to the table. They will ask the NSTA to commit to the project, provide funding for their share of the building rehabilitation costs, and arrange for the meeting/conference center either through their own resources or in conjunction with a national hotel chain.

The bargaining position of the contingent from Manchester will be strengthened substantially if they have assurances that FIRST, and its component SEE, will be able to arrange appropriate National Science Foundation support without brokering the arrangements through the NSTA.

Millyard could be home to prestigious science center

Project would relieve downtown merchants' fears of Elm St. exodus

By Leslie Miller

Dean Kamen, the outspoken, helicopter-flying, fatigue-wearing scientist-cum-entrepreneur, has just announced he is making no small plans for Manchester's Millyard.

Kamen, president of DEKA Corporation and owner of several mills, told the *New Hampshire Business Review* that he has obtained financial commitments for a major new science center to occupy more than 100,000 square feet in the Pandora mill building.

It's an announcement with magic to stir the mill town's old blood. It's an announcement that should also elicit a sigh of relief from the downtown merchants, who feared their Elm Street neighbors and customers might be moving into the Pandora Company's old knitting mill.

Instead, it looks as if the National Science Teachers Association could be moving into the building. Kamen's plans call for the group to run the science center. Last Monday Bill Eldridge, the NSTA's executive director, came to Manchester to take a look at the site. Eldridge's visit and the commitments of Manchester development agencies and private companies give Kamen reasons to believe the center can begin construction next year.

The Pandora building became available when May Gruber, Pandora's former chairman, offered to donate the old mill building to the City of Manchester. The city has until December 31, 1990, to decide whether to accept the gift. That's the date by which Kamen hopes to have financial and architec-



Dean Kamen, Manchester entrepreneur, is confident he can create an internationally-recognized science center in the Millyard. (Photo by Leslie Miller)

tural plans in place for the science center.

Kamen, not one for understatement, characterizes the center-to-be as the "most prestigious science center this century has seen."

"The impact for the city and the area in

general will be enormous," he said. "There will be a direct financial impact of \$50 million in the area, but also an immeasurable impact in the intellectual aspect of the city, in the pride of the city."

MILLYARD continued on page 22

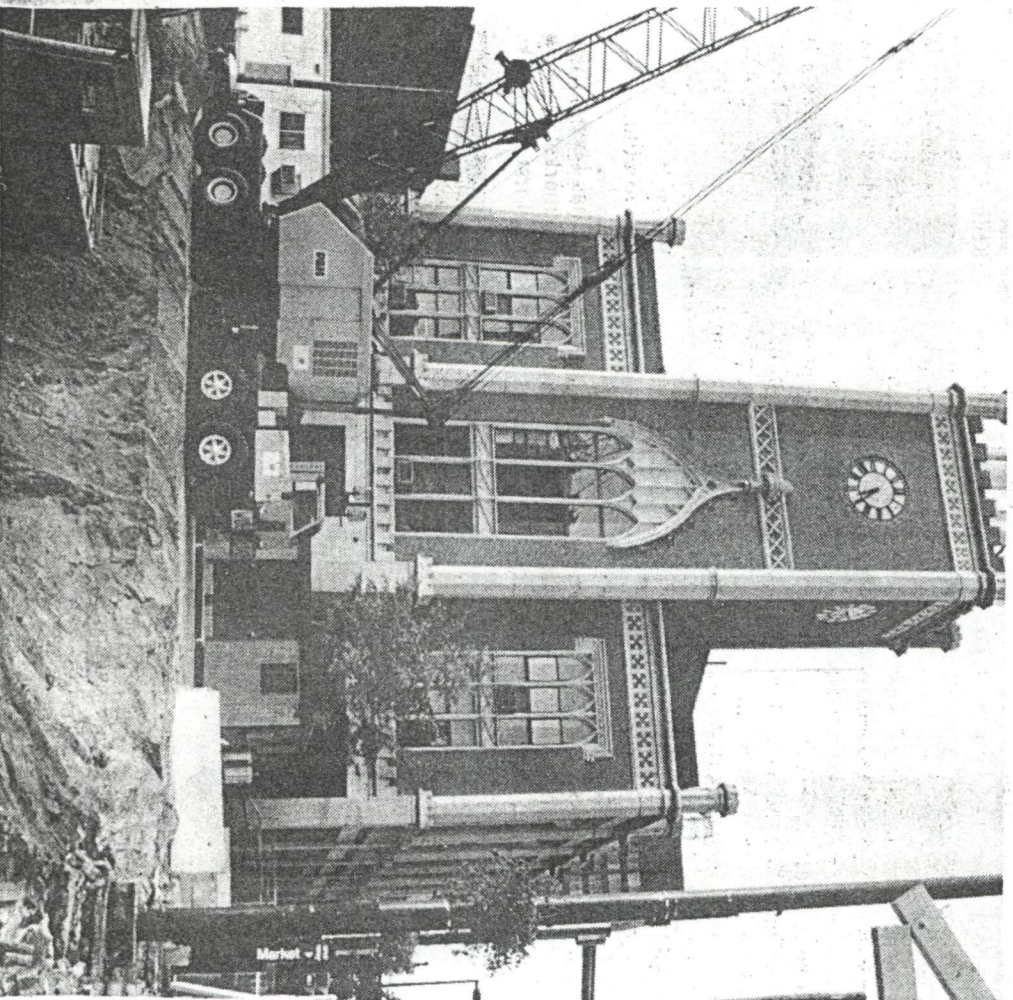
Millyard could be home to prestigious science center

continued from page 1

If Kamen's dream comes true, the science center will anchor not only the Millyard but downtown Manchester as well. "Downtown" — usually defined as Elm Street and its immediate environs — has for years competed with the Millyard for tenants. Both Elm Street and the Millyard can offer plenty of empty space. The mills have about 750,000 square feet of available space, while Elm Street has struggled to retain its retailers ever since the Mall of New Hampshire opened several miles away.

Initially, Gruber's gift of the Pandora building put a scare into downtown merchants. They had reason to fear. Already the downtown area had been undergoing a real estate shuffle that threatened to deal them out. The belle of Amherst Street — the *Union Leader* — left its 80,000-square-foot bower, and construction of the 20-story NYNEX building on Elm Street will result in a vacant New England Telephone Building, also on Elm. A planned City Hall consolidation further threatened to stack the deck against the retailers.

Although the NYNEX site and City Hall rest cheek by jowl, most of Manchester's municipal offices are scattered throughout the city. And Manchester is paying top dollar for some of those less-than-top-dollar offices. The city therefore decided in December 1989 that it would consolidate its far-flung operations into 78,000 square feet of space — with the possible addition of 40,000 square feet of state offices. Visions of moving vans immediately began dancing in downtown merchants' heads.



The NYNEX building, under construction next to Manchester City Hall, is part of the real estate shuffle downtown.

The spectre of downtown deteriorating even further inspired the Downtown Business Council to fire off a letter to Manchester Mayor Ray Wicczorek, asking him to keep city offices on or near Elm Street. DRMA President Mark Taylor argued that City Hall belongs downtown and it would be cheaper downtown. He said the problem of Elm Street's decline "is such a big problem it scares everybody."

Although the downtown merchants have received no assurances from the city, they probably have nothing to worry about. City Coordinator Steven Lobelczyk said City Hall's move and what to do with the Pandora building are two different issues.

"It's clearly incumbent upon us to be sensitive to the needs of downtown," he said. "The downtown business district is clearly a key consideration in deciding where to relocate office space."

The city has received nine proposals. To those familiar with Manchester, none of the proposals should come as a surprise. Three developers have proposed new buildings; Charlie Twigg would like to build a new office tower in the Wall Street complex; NYNEX is offering to build a new city hall on the site of the City Hall Annex; and John B. Sullivan would like to construct a new city hall in front of St. Joseph's Cathedral.

Four proposals — not including the Pandora building — would take City Hall away from downtown. John Madden is offering 540 Commercial Street in the Millyard; south of the Millyard, the Sundial building

Continued from previous page

has said it would also like Manchester as a tenant. The city has received offers from 200 Bedford Street and 1844 Associations as well.

Three other proposals — the *Daily Mirror* building on Hanover Street, the *Union Leader* building and the New England Bell building — would keep city offices within downtown.

Lobelczyk said the proposals include deals for leases, leases with option to pur-

Kamen has commitments for a major new science center to occupy some 100,000 square feet in the Pandora building

chase and outright purchase. The city has \$2.5 million bonding capacity for the new offices. It plans to have recommendations for the Board of Mayor and Aldermen by mid-October.

Tom Farrelly, a broker with Cushman and Wakefield, is placing his bets on the 100,000-square-foot New England Bell building, which is just down Elm Street from City Hall. Farrelly doesn't think the city can afford to build, nor does he think it will move into the parking-scarce Mill-yard. "1228 Elm Street is a great building that would do well as a rehabbed office space," he said. "That's where they belong."

Kamen states emphatically that City Hall will *not* move into the Pandora building. That's because a city agency, the Greater Manchester Development Corp., has agreed to help him convince the National Science Teachers Association to come to Manchester.

Kamen has a track record of making things happen — from the time he elevated

his parents' house to build a machine shop when in high school to the time he invented the insulin pump as a young man. Those familiar with his science center project think he'll bring this off, too.

In addition to the GMDC, Kamen has lined up some heavy-hitting support. Amoskeag Industries has agreed to be a substantial supporter; Raytheon Company has said it would help by finding an executive director; Digital Equipment Corporation, the Henley Group and Merck Pharmaceutical have all come up with significant dollars.

By "significant dollars," Kamen's talking about more than \$10,000 and in some cases more than \$250,000. He has also gotten an international advertising agency, Chiat/Day/Mojo, to contribute pro bono work. Mayor Wleczorek and Gov. Gregg have both been supportive, he said.

So what kind of a vision does this vision-ary have for a science center? He's already had a chance to experiment with one; his Science Enrichment Encounter center that he supports in the Millyard attracts 100,000 kids a year.

"The new science center will move my science center forward by a factor of about 20," he said. "It'll have a few of the standard things. But mostly it will be to test ideas, to create exhibits, to help teachers learn about them, how to build them."

Kamen hopes the center will incorporate big corporations' marketing expertise in developing events and exhibits that will turn kids on to science. "We'll put them (the corporations) into a big room with the ivory-tower types and we'll say 'what can we do to incentivize kids. Let's not give them a stupid toy with some cartoon character, let's put real substance into things that dramatically change the way kids think'."

One of the center's missions will be to put a "Good Housekeeping" seal of approval on science exhibits. Another will be to create media events — contests, prizes, a hall of fame — that will help create demand for

science. A third mission will be to hold conferences and educational workshops for science teachers.

"What is unique and singular is that it's not just a science center where a few kids walk in who are lucky enough to get turned on to science," said Kamen. "That shrinking group has plenty of museums and public television. But that 3 percent (of motivated kids) has no chance of pulling the world along. We're not trying to make another underutilized place. The goal is to create a museum *not* driven by museum directors or educators but by the skill of major retailers and big businesses who know how to motivate kids, whether it be McDonald's or Levi Strauss."

No small plans, indeed. Here Kamen is set on obtaining millions of dollars of funding, moving part of a national association to an obscure city thousands of miles away, creating an internationally-recognized science center and enlisting big business support. He hardly seems to blink.

Except for one thing. "Now all we have to do is figure out parking," he chuckled.

BUSINESS Bulletins

The Hampton Co-Operative Bank now offers full trust, investment management and financial planning services along with assistance in estate planning, according to Paul Perreault, president. These new services are offered by Charter Trust Company, a trust bank headquartered in Concord, which also offers these services to the customers of 10 other New Hampshire banks. □-□

Mills Industries Inc., manufacturers of corrugated plastic containers for the computer electronics industry, recently took a prestigious first place award in a national

design competition sponsored by the Institute of Packaging Professionals. □-□

Chicago-based Walgreens has agreed in principle to acquire substantially all assets of **Lee Drug Inc.**, a nine-unit drugstore chain in New Hampshire and Massachusetts. Terms of the transaction were not disclosed. Lee Drug is located in Nashua (three stores), Londonderry, Salem and Somersworth. □-□

The New Hampshire State Council for Vocational Education is seeking nominations for its third annual awards program for support of vocational-technical education. □-□

The Visiting Nurse Association of Manchester & Southern New Hampshire will provide home intravenous therapy, nursing services to cystic fibrosis patients, Sarah Hubbard, Ed.D., R.N., VNA Executive Director, announced. □-□

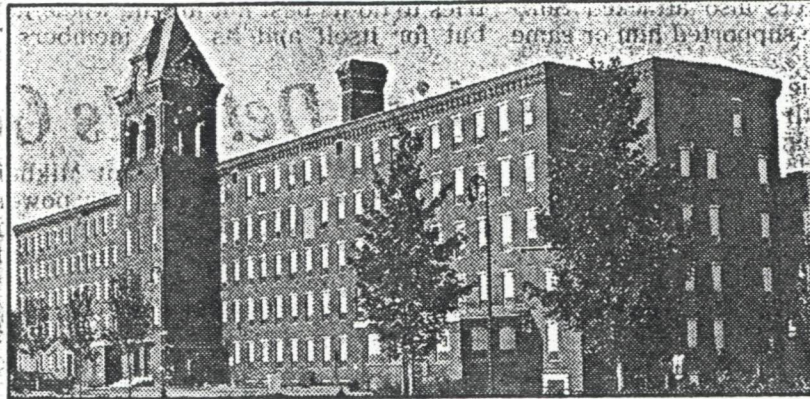
Signal Capital Corporation and Kearsarge Ventures have completed a \$1,500,000 equity investment in **Walker Power Inc.**, of Warner. □-□

Osten Temporary Services, a supplier of temporary personnel with 550 offices throughout North America, is celebrating its 40th anniversary. □-□

Thaddeus J. Koza has been appointed executive director of clinical services and James P. Richards is the executive director of community services for **Seaborn Hospital**. □-□

Lockheed Sanders Antisubmarine Warfare Directorate has been awarded an \$8.4 million U.S. Navy contract to produce Sonar Data Computers (SDC) and Sonobuoy Monitor Controls (SMC) for the S-3B Weapon System Improvement Program. □-□

National Science Group Looking at Millyard Site



THE PANDORA Building in Manchester's Millyard is being eyed as a home for some of the operations of a Washington, D.C.-based national science foundation.

By NANCY MEERSMAN
Union Leader Staff

The prestigious National Science Teachers Association is considering moving some of its operations from Washington, D.C., to the Amoskeag Millyard in Manchester.

Discussions have begun between city officials and the NSTA for space in the Pandora building, which the Gruber Foundation offered to give the city.

One option is that some of the NSTA's publication operations, warehousing and distribution functions would be moved to

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U.N. Security Council Slaps Air Embargo Against Iraq

Soviet Foreign Minister Gives Saddam Harsh Warning

By JOCELYN NOVECK
Associated Press Writer

The U.N. Security Council yesterday voted 14-1 to impose an air embargo against Iraq in retaliation for its invasion and annexation of Kuwait and the Soviet Union warned of possible U.N. military action. Cuba cast the lone dissenting vote in the special session, which extended the powers of an earlier U.N. trade embargo.

It was the ninth resolution passed by the Security Council condemning Baghdad and its leader, Saddam Hussein, for its blitzkrieg of

Kuwait. The lightning Kuwaiti takeover, which took only hours to complete, left Iraq in control of 20 percent of the world's oil reserves.

World prices of oil have nearly doubled since the invasion to almost \$40 a barrel, the New York Stock Exchange has sunk to a 14-month low and gold has passed \$400 an ounce as the economic repercussions of the invasion became apparent.

The Security Council late yesterday afternoon voted 14-1 to impose an air embargo against Iraq, cutting off flights to and from that nation and

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SCIENCE CENTER

(Continued From Page One)

Manchester. Other operations could follow later.

Such a move could mean as few as two or three — or as many as 150 jobs.

But now everything is tentative.

"We're at a very early stage at this point and we are meeting with city and state officials, trying to see if something's possible," said William Aldridge, executive director of the National Science Teachers Association.

NSTA is the world's largest organization dedicated to the improvement of science education. It has 50,000 members including science teachers, scientists and other interested in science education.

NSTA provides testimony to Congress on education legislation and publishes four professional journals, a student magazine, a newspaper and approximately 150 other titles that address subjects of interest to science educators.

The National Science Teachers Association receives funding from the National Science Foundation. It administers some NSF-funded programs as well as programs funded by NASA, Upjohn, Dow, DuPont, Duracell and others.

Aldridge said NSTA is interested in coming here only because of the Foundation for the Inspiration and Recognition of Science and Technology (FIRST), which inventor-entrepreneur Dean Kamen has been organizing for the past year.

FIRST is a network of corporate and scientific leaders who will work together for the first time to find ways to make science and technology fun for children.

The goal is to reverse America's downslide as a technological world leader by changing the way children look at the world, a world where football celebrities are on every cereal box instead of heroes of the scientific world.

"It's an institute whose goal is

to take the best from both sides — the people who live in an ivory tower together with people who understand sales and marketing and how to create excitement," Kamen said.

Aldridge said the NSTA's role and Kamen's plans would complement each other. "If it weren't for him and what he's doing there we would have no interest," said Aldridge. "It would make it interesting for us. There is also the unique character of the building, and the location."

May Gruber, founder of the Pandora sweater empire, said the NSTA proposal seems consistent with the Gruber Foundation's intentions for the building. She said the NSTA option is just one of several suggestions for non-profit use of the building and she would "welcome any suggestions they have for non-profit organizations." The city has to decide by Dec. 31 whether to accept the building.

Kamen has a vision of developing his Science Enrichment Encounters (SEE) exhibit into first-rate science museum in the millyard in cooperation with the NSTA. Also envisioned is a hall of fame for scientists, engineers and technicians, a convention center and scientific institutes.

"Those are dreams, but you have to convert them into reality, and worry about renovations and permits and a million other things," said Aldridge. "But with a phased approach over five years, I think you could do it."

Community leaders and elected officials, including Gov. Judd Gregg, Mayor Raymond Wiecezorek, Alderman William Cashin, Alderman Ann Bourque, officials from the Greater Manchester Development Corp. and John McLane from Amoskeag Industries, which has an endowment that could support the millyard project, met in Kamen's office last week to discuss the prospects with NSTA officials.

GMDC president Herbert

Stebbins said the GMDC was putting together cost information on various options for NSTA.

He said the GMDC would act as a catalyst and facilitator in an effort to bring NSTA to Manchester.

"I think it will have a tremendous impact on Manchester," said Mayor Wiecezorek. "It will make Manchester a destination city, rather than just someplace to go through to go somewhere else."

"The millyard is very unique and very historic, and it seems to me that this would just fit right in. It's hard to grasp how really important this would be to our area, and I'm doing all I can to try to make it happen."

The NSTA has also discussed organizing four conferences a year, which could bring hundreds of visiting educators to the city.

Kamen said giants from the academic and corporate worlds, including two Nobel laureates, NYNEX Corp., Digital, Raytheon, the Merck Foundation, and Jay Chiat, president of the Chiat/Day/Mojo advertising company, are supporting FIRST. He said supporters also include the Burroughs Wellcome Corp. and the Burroughs Wellcome Foundation, Meggitt USA Inc.

Ray Price, a former Nixon speechwriter and president of the Economic Club of New York, is among those actively involved and was in Manchester for last week's meeting. "I share with him his very deep concern about the downward spiral in scientific literateness," said Price, who called Kamen's project "ambitious but doable."

"It (FIRST) starts with the premise that if we're to restore the country's leadership in science and technology, we've really got to achieve some fundamental attitude changes, especially among young kids when their attitudes are being formed."



NATIONAL SCIENCE TEACHERS ASSOCIATION

1742 Connecticut Avenue, NW, Washington, DC 20009 (202) 328-5800

March 29, 1989

Bill G. Aldridge, Executive Director

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Mr. Dean Kamen
Chairman
U.S. FIRST
Technology Center
340 Commercial Street
Manchester, NH 03101

Dear Dean:

I very much enjoyed our discussion of your ideas for the Science and Technology Hall of Fame. The idea is excellent, and the various components and functions you have considered for the Center, are very appealing.

Certainly the National Science Teachers Association is supportive of important projects like this which are aimed at improving the scientific knowledge of the general public, as well as that of school children.

Because I want to assist and support your efforts more directly, I am pleased to accept your invitation to serve on the Board of Directors of U.S. FIRST.

As indicated previously, I am anxious to come to Manchester to see your existing program and to look more carefully at your plans for the future. I also want to consider Manchester as the site of one of our Fall regional Conventions. To that end, it would be helpful to receive hotel and meeting information.

As soon as I return from Seattle and Moscow, we will try to get a definite date for my visit.

Sincerely,


Bill G. Aldridge
Executive Director

An Affiliate of the American
Association for the
Advancement of Science

THE WHITE HOUSE

WASHINGTON

November 13, 1990

MEMORANDUM FOR GOVERNOR SUNUNU

FROM: D. ALLAN BROMLEY 

SUBJECT: MATHEMATICS AND SCIENCE EDUCATION INFRASTRUCTURE INITIATIVE

A proposal for an Administration initiative is outlined below which is aimed at preserving U.S. leadership in graduate science and engineering education and research, and in using this strong base to upgrade undergraduate mathematics and science education in order to address some very high priorities in K-12 mathematics and science education. Among its aims is the reassertion of Presidential leadership in this crucial area at a time of increasingly aggressive Congressional attention.

Background

Technological progress plays a central role in economic growth. This progress, in turn, depends on a supply of educated professionals in mathematics, science and engineering, and a scientifically and mathematically literate work force. Two recent Bush Administration reports, the February 1990 Economic Report of the President and the September 1990 U.S. Technology Policy emphasize these points. The February 1989 Administration document, Building a Better America, also focuses on the importance of these investments in America's future.

In the United States, our graduate education system in mathematics, science and engineering is, without doubt, the best in the world. It attracts the best students and researchers from all over the world. We must preserve this leadership.

The quality of our undergraduate education in these areas is much more variable than that found in most other countries. We have peaks of excellence and valleys of mediocrity, but on average we are competitive; however, we do need to improve the weaker institutions.

Precollege education in the United States - especially in mathematics and science - is scandalous. International comparisons of educational achievement in these subjects place American students near the bottom compared to other industrialized nations. This must be improved.

The challenge to the nation and the Bush Administration is to fix that part of our educational system that is broken and preserve excellence where it exists.

Precollege education is predominantly a non-Federal government responsibility. The Administration has done an excellent job of developing broad policy and shaping a climate for reform of our K-12 system. The President and the Governors have enunciated National Education Goals, and White House leadership has taken us well along the path toward educational reform that will be necessary for their attainment.

We have also made significant progress in developing a coherent federal approach to mathematics and science education. A committee of the Federal Coordinating Council on Science, Engineering and Technology (FCCSET), chaired by Admiral James Watkins, was asked to review all existing Federal agency-supported programs in the area of mathematics and science education, with the intent of providing greater coordination and efficiency among disparate Federal programs. In the process of doing this interagency cross-cutting evaluation, the Committee has taken the President's and Governors' goals and developed a National Education Priority Framework for the Federal government, with specific strategic objectives and implementation priorities. The highest priorities relate to teacher competence and curriculum and organizational reforms. These priorities have provided a template for an 11-agency Federal program for FY 1992. Admiral Watkins and I - together with agency officials - presented this cross-cutting evaluation to OMB for review during a two-hour hearing on November 1.

Colleges and universities have a clear and apparent role in graduate and undergraduate education. They also influence K-12 education in crucial ways.

The question is how should we position federal support in order to best preserve our lead in graduate education, improve our undergraduate instruction, and assist in fixing our K-12 problems.

OUTLINE OF INITIATIVE

Since the end of the Second World War, the United States has perpetrated a myth that the Federal government supports research in universities but not education at the graduate level. In reality, generations of graduate students in all fields have been supported as research assistants on federal grants and contracts throughout their graduate education program. The initiative that we suggest herein moves us away from that myth ever so slightly. It also provides an opportunity to require from the universities a plan, in return for the support provided by the initiative, outline steps they would take to bring university costs under control as well as to stabilize or reduce tuition costs at the undergraduate and graduate levels.

This initiative complements other efforts of the Administration towards achievement of the National Education Goals. It should be emphasized that the K-12 problem is predominantly a state and local responsibility. At the Federal level, the mathematics and science aspects of the K-12 problem are being addressed by Adm. Watkins' interagency committee, and the interagency FY 1992 initiative is now being reviewed by OMB and the EOP. That initiative would be on a parallel track with this one. Taken together, the two initiatives would constitute a comprehensive Administration mathematics, science and engineering educational and facilities initiative.

GOALS OF INITIATIVE

Graduate Education. We are number one in the world in graduate education in mathematics, science and engineering. Our support structure is fundamentally sound, although we face many tough decisions on individual programs and projects. However, the research universities have deferred building and renovating facilities for a decade. According to a new NSF study, we have accumulated a facilities backlog of approximately \$12 billion.

- o **Goal: retain our position of world leadership in graduate education in science, mathematics and engineering.**

Excellence in graduate education in mathematics and science is not enough if our nation is to be a world leader in the 21st century. For example, about half of our doctorates in engineering and physics are now granted to foreign citizens. Clearly, there are failures in our undergraduate and K-12 education programs.

Undergraduate Education. Almost 50% of American freshman enter a college or university within 50 miles of their homes. Thus, to provide a quality education, there is a need for excellent undergraduate institutions in all parts of the country. In science and engineering this means providing modest research support, such as that found in the highly successful EPSCoR (Experimental Program to Stimulate Competitive Research) Program. Without at least a modest base of high-quality research, teaching falters. At the same time, it should be emphasized that there is no reason whatever to support less than excellent research anywhere -- such research neither contributes to teaching nor to regional economic development.

Education at the undergraduate and graduate levels is becoming increasingly expensive. Concern has been expressed about the accessibility of college and university education. This initiative could address the cost issue by making receipt of program funds conditional on bringing overhead and tuition costs under control. This could also be structured to be consistent with the Administration's developing Empowerment policies.

- o **Goal: Make quality undergraduate education in mathematics, science and engineering available to students in all parts of the country.**

K-12 Education. A necessary condition for attaining the National Education Goals as they relate to mathematics and science is a talented teacher corps, well-prepared in the subject matter of their disciplines. Admiral Watkins' committee has placed its highest priority on teacher education and improvement. This is particularly important at the high school level.

Adequate training and retraining of our mathematics and science teachers is no small task. For it to be effective, reforms are needed in our teacher education, involving broader participation by senior professors in our universities and a normal preparatory path for teachers that includes undergraduate majors in subjects other than education. There is an opportunity for the federal government to catalyze this reform.

- o **Goal: Reorient college and university curricula and teaching so as to provide the best education possible for mathematics and science teachers, especially at the high school level.**

Major elements of the Initiative:

- o Upgrade university and college research facilities; studies indicate that the total accumulated shortfall may be as high as \$12 billion for both renovation and new construction. Our emphasis should be on renovation, to make available modern research facilities that are competitive with those in industry and in our leading competitor foreign nations. An emphasis on renovation (as contrasted to new construction) is especially important in this period of limited resources because it provides improved quality for the research environment of existing researchers without demanding their numbers increase.
- o Strengthen college and university teaching and related research in order to provide high-quality undergraduate opportunities for mathematics, science and engineering students in all parts of the country.
- o Support college and university efforts to reform K-12 teacher education and retraining. This implies upgraded teacher education programs, greater participation by senior professors, and substantial increases in the number of subject matter majors in mathematics and science.
- o Require universities to develop a management plan in the long run to evolve economic self-sufficiency to control costs, and stabilize or reduce tuition costs.

Characteristics:

- o 5-year program; no extension contemplated since once completed universities and colleges should be expected to manage their activities so that use and amortization fees paid as part of federal overhead payments would enable them to maintain their infrastructure at an acceptable quality level for the indefinite future.

- o \$1 - 1.4 billion/year Federal funding (average);
 - \$750M - \$1B/year for facilities
 - \$200 - 300M/year for targeted research in support of educational and economic development objectives
 - \$50 - 100M/year for teacher education reform
- o At least 50-50 non-federal matching for facilities to help insure high-quality activities.
- o Begin in FY 1992.

Interagency effort:

- o Policy and goals enunciated by the President.
- o Strategy and priorities developed by the technical agencies.
- o Interagency funding, management and coordination.

Budget Offsets:

- o End specific earmarkings of research and development funds by Congress (Congressional directed, "pork" projects); this would require agreement by Congressional leadership, including Appropriations Committees. These total a few hundred million dollars per year (a careful inventory is being prepared by OSTP) and could be directed to this initiative.
- o Shift in schedules/timing for some large projects in science. Specifics could be developed during the FY 1992 budget review.
- o Optimize the balance in current R&D programs between research, education and facilities funding. The overall effects on funding of research by individual investigators and small groups should be positive or, at worst, zero.

Homework to be Done:

- o Identify and characterize present congressional earmarks.
- o Identify and characterize current programs that support excellence in college and university mathematics and science teaching and related research; this would include EPSCoR and similar programs.
- o Review recommended and actual reforms under way in K-12 teacher education and retraining, and identify ways to leverage desirable reforms through modest federal support. Sources would include PCAST, NRC Biology Education Report and Carnegie Commission education effort.

Details of facilities program:

A 5-year program to support merit reviewed renovation and, where appropriate, construction projects as a component of the Federal support of U.S. research universities and colleges. Among the requirements of the program would be the following:

- a. 50/50 non-federal matching.
- b. a university commitment that user fees for buildings and amortization fees for equipment be sequestered for use exclusively in infrastructure and equipment purchase areas rather than as, at present, being added to general fund accounts.
- c. a Federal change in the building and equipment amortization schedules from 50 and 15 years to 20 and 5 years respectively to provide an adequate cash flow so that, following the catch-up enabled by this initiative, they could and should be expected to be self-sustaining with respect to infrastructure.
- d. a requirement that universities in applying to this initiative pledge to forego acquisition of facilities funding through pork channels.
- e. a commitment by universities and colleges that they manage their bureaucracies such that their overhead rates on federal grants and contracts be returned to, and stabilized at their 1985 levels.
- f. a commitment by universities and colleges that they take measures to stabilize, and where possible, reduce tuition costs to, or below, their 1990 levels.

OPTIONS

Three elements of a mathematics and science education infrastructure initiative are outlined above. They are:

- a. 5-year facilities renovation and construction program.
- b. Program to strengthen university and college teaching and related research on a widely distributed geographic basis.
- c. Program to support college and university efforts to reform K-12 teacher education and training in mathematics and science.

Although there is a certain amount of positive interaction between the three elements of the initiative as presented, they could be supported selectively, that is one element only or any two elements taken together. Thus, options include:

1. 5-year facilities program only
\$800 - \$1B/year
2. 10-year facilities program only
\$400 - \$500B/year
3. Program to strengthen university and college teaching and related research
\$200 - \$300M/year
4. Program for college and university efforts to reform K-12 teacher education
\$50 - 100M/year
5. 1 + 3 + 4 above
\$1 - 1.4B/year
6. 2 + 3 + 4 above
\$650 - 900M/year
7. 2 + 3 above
\$250 - 400M/year

IMPLEMENTATION

If this initiative, in any of its variants meets with approval, the State of the Union message would be a very effective vehicle for its announcement.

THE WHITE HOUSE

WASHINGTON

October 9, 1990

SCHEDULE PROPOSAL

TO: CECILE B. KREMER
ASSISTANT TO THE VICE PRESIDENT AND
DIRECTOR OF SCHEDULING

FROM: D. ALLAN BROMLEY 
ASSISTANT TO THE PRESIDENT FOR
SCIENCE AND TECHNOLOGY

REQUEST: Receive and address secondary teachers representing the President in a Rose Garden or East Room Ceremony for the Presidential Secondary Awards for Excellence in Science and Mathematics Teaching with brief remarks on the Administration's strong support of education.

PURPOSE: To demonstrate the Administration's strong commitment to education by recognizing those teachers of science and mathematics whose dedication and accomplishments are truly outstanding. This is consistent with the Administration's commitment to improving the education system in this Nation and the work by the Administration on the math and science education goal. A high level appearance will applaud the efforts these teachers have made to improve the skills of this Nation's young people, and assist in highlighting the anniversary of the Education Summit.

BACKGROUND: The awards are given annually to outstanding secondary teachers, two from each state, the District of Columbia, Puerto Rico, U.S. Territories, and the DoD Dependent Schools. They are nominated by their peers with final recommendation by a distinguished panel of educators chosen by the National Science Foundation. The Assistant to the President for Science and Technology reviews and approves the finalists and forwards them to the President for final decision.

PREVIOUS

PARTICIPATION: The President addressed the 1989 recipients of the Presidential Awards for Excellence in Science and Mathematics Teaching (secondary) on October 24, 1989. The Vice President and the First Lady were in attendance.

DATE: October 16, 1990 (preferred, or anytime at the Vice President's discretion during the week of Oct. 15-19).

LOCATION: Rose Garden/East Room (15 minutes)

TIME: Open

PARTICIPANTS: The Vice President, Dr. D. Allan Bromley, Assistant to the President for Science and Technology, Frederick M. Bernthal, Acting Director of The National Science Foundation, award winners, and family.

**OUTLINE OF
EVENT:**

The Vice President addresses the teachers in the Rose Garden/East Room representing the President. Teachers and guests then proceed to Room 450 OEOB for presentation of Awards by Dr. Bromley and Dr. Bernthal.

**MEDIA
COVERAGE:** Open

**REMARKS
REQUIRED:** Brief congratulatory remarks and brief remarks on the importance of the teacher's contributions to the education of our Nation's youth.

**RECOMMENDED
BY:**

D. Allan Bromley, OSTP
Jackeline J. Clawson, Project Officer, OSTP (x2870)

"CORRESPONDENCE TRACKING"

TYPE: Action Item

DOCUMENT NUMBER: 9020809

FROM: John Friedrich, N. Carolina School of Science and Math.

TO: Bromley

DATE OF
CORRESPONDENCE: 02/23/90

SUBJECT: Wants you to ask President to speak at graduation
ceremony. If he isn't available, will you do it?

ASSIGNED TO:

ACTION REQUIRED:

SENDER'S DUE DATE:

OSTP DUE DATE: 03/28/90

DATE COMPLETED: -----

COPIES TO:

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS:

DATE RECEIVED: 03/01/90

FILE: NEOB

The North Carolina School
of Science and Mathematics



P.O. Box 2418
1219 Broad Street
Durham, North Carolina 27705
919/286-3366

Office of the Director

February 23, 1990

Dr. D. Allan Bromley
Assistant to the President
for Science and Technology
The White House
Washington, DC 20500

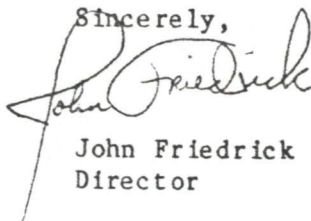
Dear Dr. Bromley:

Once again I would like to thank you ~~for~~ your recent visit to the North Carolina School of Science and Mathematics. You mentioned the importance of developing national goals for science and mathematics. I know that you have an advisory council set up to that end. I would appreciate serving that council in whatever capacity you feel is appropriate. I feel that national goal setting is extremely important so that people look forward to something attainable and worthy of attainment. Please let me know if there is any way I can assist.

On another matter, we would like to know if President Bush would be willing to speak at our graduation ceremony on Saturday, June 2 at 10:30 a.m. (11:00 a.m. in case of inclement weather). Would you intercede for us on this matter? Would you consider standing in for the President if he is unable to speak? Both of you have your finger on the pulse of science and math education in the future and it is extremely important to us that we have your insights if we are to be among the boldest and the most forward thinking.

Please let us know at your earliest convenience if it would be possible for you or President Bush to serve as our graduation keynote speaker.

Sincerely,



John Friedrich
Director

JF:ABD

THE WHITE HOUSE
WASHINGTON

SCHEDULE PROPOSAL

March 12, 1990

TO: JOSEPH W. HAGIN, II
Deputy Assistant to the President
for Appointments and Scheduling

FROM: D. ALLAN BROMLEY *AWB*
Assistant to the President for Science and Technology

REQUEST: Commencement speech to the graduating class of the North Carolina School of Science and Mathematics.

PURPOSE: For the President to speak of the importance to the nation of fundamental education in mathematics and science.

BACKGROUND: The North Carolina School of Science and Mathematics is one of the country's premier magnet high schools of science and mathematics. This commencement occasion would provide an opportunity for the President to underscore his commitments to both science and education and to reach a group of already very accomplished young American scientists and engineers.

PREVIOUS PARTICIPATION: None.

DATE AND TIME: Saturday, June 2, 1990; 10:30 a.m.

DURATION: 30 minutes to one hour, plus travel time.

LOCATION: Durham, North Carolina

PARTICIPANTS: Graduating seniors and their families, and the student body, faculty, and officers of the North Carolina School of Science and Mathematics, as well as state officials, probably including Governor James Martin.

OUTLINE OF EVENT: President to speak for 30 to 45 minutes, then depart.

REMARKS REQUIRED: Significant policy speech on national science and education goals.

MEDIA COVERAGE: To be determined by White House Press Office.

RECOMMENDED BY: D. Allan Bromley

OPPOSED BY:

THE WHITE HOUSE

WASHINGTON

Memo to James Cicconi
From Allan Bromley
Re. NC School of Science and
Mathematics.

The attached letter is self
explanatory. Normally this would
really be an inappropriate request
for the President's time. However, this
is a remarkable school that I
recently visited at Gov. Jim Martin's
request and given the President's
interest in education I pass this along.
Should he have any interest I can
give him much ~~more~~ details about
the school and program.

THE WHITE HOUSE
WASHINGTON

April 2, 1990

Dear Dr. Forrester:

Thank you for sending me the information on the uses of system dynamics approaches to education. I found it most interesting.

The education policy analyst in the Office of Science and Technology Policy is familiar with your work. As Director of the Thomas Jefferson High School of Science and Technology, she assisted Ms. Gerry Mountcastle in developing a course in mathematical modeling using STELLA and the system dynamics approach. They have had much success with STELLA and system dynamics in that course and in the students' other courses and research activities.

I appreciate your support of our work in science and mathematics education, and wish you continued success with your experimental work.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. Allan Bromley", written in a cursive style.

D. Allan Bromley
Assistant to the President
for
Science and Technology

Dr. Jay W. Forrester
Germeshausen Professor, Emeritus
Sloan School of Management
Massachusetts Institute of Technology
1 Amherst Street, E40-294
Cambridge, Massachusetts 02139

"CORRESPONDENCE TRACKING"

TYPE: Action Item

DOCUMENT NUMBER: 9021183

FROM: FORRESTER, JAY, MIT

TO: BROMLEY

DATE OF
CORRESPONDENCE: 03/21/90

SUBJECT: INTEREST IN PROBLEMS OF HIGH SCHOOL AND JUNIOR HIGH
SCHOOL EDUCATION.

ASSIGNED TO: Mary Harley Kruter

ACTION REQUIRED: DRAFT FOR DAB'S SIGNATURE AND ACKNOWLEDGMENT

SENDER'S DUE DATE: 03/29/90

OSTP DUE DATE: 04/01/90

DATE COMPLETED: -----

COPIES TO: Thomas Ratchford
Kathy Yuraco

WHITE HOUSE TRACKING #:

CONTACT PERSON:

REMARKS:

DATE RECEIVED:

FILE: SCIENCE EDUCATION

THE WHITE HOUSE

WASHINGTON

June 25, 1990

Dear Ms. Frye:

I have been extremely remiss in not responding to your warm note of last November concerning the program for Presidential awardees for Excellence in Mathematics and Science Teaching.

I am happy to be able to tell you that we are well on the way toward finalizing the program for this year. We will have not only a repeat of last year's program for secondary school teachers, but also a parallel and quite separate one for outstanding elementary school teachers.

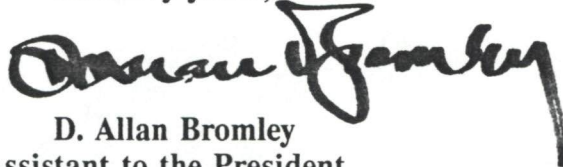
I was, of course, very pleased to hear your positive reaction to last year's program and it will be our goal to make this one an even more noteworthy occasion.

As I mentioned during last year's ceremonies, you represent an endangered species. All of us in the Nation, and particularly those of us in the sciences, mathematics and engineering owe an enormous debt to those of you who are carrying on the often thankless task of stimulating our young people in all of our fields. Career decisions quite distinct from most other professions tend to be made by the junior year in high school and, if we have lost youngsters at that point, we have lost them permanently.

The President feels very strongly about the importance of recognizing superior teaching performance as do I. If you have any specific suggestions as to how we might improve the current program, I would look forward to hearing from you.

With all best wishes,

Sincerely yours,

A handwritten signature in dark ink, appearing to read "D. Allan Bromley", with a long, sweeping flourish extending from the end.

D. Allan Bromley
Assistant to the President
for
Science and Technology

Ms. Shirley M. Frye
President
National Council of Teachers of Mathematics
6802 East Sunnyvale Road
Scottsdale, Arizona 85253

THE WHITE HOUSE
WASHINGTON

November 13, 1990

MEMORANDUM FOR GOVERNOR SUNUNU

FROM: D. ALLAN BROMLEY 
SUBJECT: MATHEMATICS AND SCIENCE EDUCATION INFRASTRUCTURE
INITIATIVE

A proposal for an Administration initiative is outlined below which is aimed at preserving U.S. leadership in graduate science and engineering education and research, and in using this strong base to upgrade undergraduate mathematics and science education in order to address some very high priorities in K-12 mathematics and science education. Among its aims is the reassertion of Presidential leadership in this crucial area at a time of increasingly aggressive Congressional attention.

Background

Technological progress plays a central role in economic growth. This progress, in turn, depends on a supply of educated professionals in mathematics, science and engineering, and a scientifically and mathematically literate work force. Two recent Bush Administration reports, the February 1990 Economic Report of the President and the September 1990 U.S. Technology Policy emphasize these points. The February 1989 Administration document, Building a Better America, also focuses on the importance of these investments in America's future.

In the United States, our graduate education system in mathematics, science and engineering is, without doubt, the best in the world. It attracts the best students and researchers from all over the world. We must preserve this leadership.

The quality of our undergraduate education in these areas is much more variable than that found in most other countries. We have peaks of excellence and valleys of mediocrity, but on average we are competitive; however, we do need to improve the weaker institutions.

Precollege education in the United States - especially in mathematics and science - is scandalous. International comparisons of educational achievement in these subjects place American students near the bottom compared to other industrialized nations. This must be improved.

The challenge to the nation and the Bush Administration is to fix that part of our educational system that is broken and preserve excellence where it exists.

Precollege education is predominantly a non-Federal government responsibility. The Administration has done an excellent job of developing broad policy and shaping a climate for reform of our K-12 system. The President and the Governors have enunciated National Education Goals, and White House leadership has taken us well along the path toward educational reform that will be necessary for their attainment.

We have also made significant progress in developing a coherent federal approach to mathematics and science education. A committee of the Federal Coordinating Council on Science, Engineering and Technology (FCCSET), chaired by Admiral James Watkins, was asked to review all existing Federal agency-supported programs in the area of mathematics and science education, with the intent of providing greater coordination and efficiency among disparate Federal programs. In the process of doing this interagency cross-cutting evaluation, the Committee has taken the President's and Governors' goals and developed a National Education Priority Framework for the Federal government, with specific strategic objectives and implementation priorities. The highest priorities relate to teacher competence and curriculum and organizational reforms. These priorities have provided a template for an 11-agency Federal program for FY 1992. Admiral Watkins and I - together with agency officials - presented this cross-cutting evaluation to OMB for review during a two-hour hearing on November 1.

Colleges and universities have a clear and apparent role in graduate and undergraduate education. They also influence K-12 education in crucial ways.

The question is how should we position federal support in order to best preserve our lead in graduate education, improve our undergraduate instruction, and assist in fixing our K-12 problems.

OUTLINE OF INITIATIVE

Since the end of the Second World War, the United States has perpetrated a myth that the Federal government supports research in universities but not education at the graduate level. In reality, generations of graduate students in all fields have been supported as research assistants on federal grants and contracts throughout their graduate education program. The initiative that we suggest herein moves us away from that myth ever so slightly. It also provides an opportunity to require from the universities a plan, in return for the support provided by the initiative, outline steps they would take to bring university costs under control as well as to stabilize or reduce tuition costs at the undergraduate and graduate levels.

This initiative complements other efforts of the Administration towards achievement of the National Education Goals. It should be emphasized that the K-12 problem is predominantly a state and local responsibility. At the Federal level, the mathematics and science aspects of the K-12 problem are being addressed by Adm. Watkins' interagency committee, and the interagency FY 1992 initiative is now being reviewed by OMB and the EOP. That initiative would be on a parallel track with this one. Taken together, the two initiatives would constitute a comprehensive Administration mathematics, science and engineering educational and facilities initiative.

GOALS OF INITIATIVE

Graduate Education. We are number one in the world in graduate education in mathematics, science and engineering. Our support structure is fundamentally sound, although we face many tough decisions on individual programs and projects. However, the research universities have deferred building and renovating facilities for a decade. According to a new NSF study, we have accumulated a facilities backlog of approximately \$12 billion.

- o **Goal: retain our position of world leadership in graduate education in science, mathematics and engineering.**

Excellence in graduate education in mathematics and science is not enough if our nation is to be a world leader in the 21st century. For example, about half of our doctorates in engineering and physics are now granted to foreign citizens. Clearly, there are failures in our undergraduate and K-12 education programs.

Undergraduate Education. Almost 50% of American freshman enter a college or university within 50 miles of their homes. Thus, to provide a quality education, there is a need for excellent undergraduate institutions in all parts of the country. In science and engineering this means providing modest research support, such as that found in the highly successful EPSCoR (Experimental Program to Stimulate Competitive Research) Program. Without at least a modest base of high-quality research, teaching falters. At the same time, it should be emphasized that there is no reason whatever to support less than excellent research anywhere -- such research neither contributes to teaching nor to regional economic development.

Education at the undergraduate and graduate levels is becoming increasingly expensive. Concern has been expressed about the accessibility of college and university education. This initiative could address the cost issue by making receipt of program funds conditional on bringing overhead and tuition costs under control. This could also be structured to be consistent with the Administration's developing Empowerment policies.

- o **Goal: Make quality undergraduate education in mathematics, science and engineering available to students in all parts of the country.**

K-12 Education. A necessary condition for attaining the National Education Goals as they relate to mathematics and science is a talented teacher corps, well-prepared in the subject matter of their disciplines. Admiral Watkins' committee has placed its highest priority on teacher education and improvement. This is particularly important at the high school level.

Adequate training and retraining of our mathematics and science teachers is no small task. For it to be effective, reforms are needed in our teacher education, involving broader participation by senior professors in our universities and a normal preparatory path for teachers that includes undergraduate majors in subjects other than education. There is an opportunity for the federal government to catalyze this reform.

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Major elements of the Initiative:

- o Upgrade university and college research facilities; studies indicate that the total accumulated shortfall may be as high as \$12 billion for both renovation and new construction. Our emphasis should be on renovation, to make available modern research facilities that are competitive with those in industry and in our leading competitor foreign nations. An emphasis on renovation (as contrasted to new construction) is especially important in this period of limited resources because it provides improved quality for the research environment of existing researchers without demanding their numbers increase.
- o Strengthen college and university teaching and related research in order to provide high-quality undergraduate opportunities for mathematics, science and engineering students in all parts of the country.
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OPTIONS

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\$650 - 900M/year
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