

June 2003

MILITARY TRANSFORMATION

Realistic Deployment Timelines Needed for Army Stryker Brigades



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 for Army Stryker Brigades**

Why GAO Did This Study

The Army is organizing and equipping rapidly deployable Stryker brigades as the first step in its planned 30-year transformation. Stryker brigades are to help fill a gap in capabilities between current heavy and light forces—heavy forces require too much time to deploy, and light infantry forces lack the combat power and mobility of the heavy forces. The Army has a goal to be able to deploy a Stryker brigade anywhere in the world with 4 days.

As part of a series of ongoing reviews of Army transformation, GAO assessed the Army’s progress in (1) meeting its deployment goal for Stryker brigades and (2) supporting and sustaining a deployed Stryker brigade in combat operations.

What GAO Recommends

GAO recommends that the Secretary of the Army work with the U.S. Transportation Command and its components to set realistic deployment timelines for the brigades that (1) reflect the use of both airlift and sealift, size of the deployed force, brigade location, and destination and (2) take into account any organizational or operational changes resulting from modifications and enhancements directed by the Office of the Secretary of Defense. In commenting on a draft of this report, the Department of Defense generally concurred with the report.

www.gao.gov/cgi-bin/getrpt?GAO-03-801.

To view the full product, including the scope and methodology, click on the link above. For more information, contact William M. Solis at (202) 512-8365 or solisw@gao.gov.

What GAO Found

The Army has made significant progress in creating forces that can be more rapidly deployed than heavy forces with its medium weight Stryker brigades, but it cannot deploy a Stryker brigade anywhere in the world within 4 days. Meeting the 4-day worldwide deployment goal of a brigade-size force would require more airlift than may be possible to allocate to these brigades; at present, it would take from 5 to 14 days, depending on brigade location and destination, and require over one-third of the Air Force’s C-17 and C-5 transport aircraft fleet to deploy one Stryker brigade by air. Because airlift alone may not be sufficient, the Army is planning to use a combination of airlift and sealift to deploy the brigades. However, if sealift were used to deploy the Stryker brigades, deployment times to many global regions would be significantly longer than the 4-day goal the Army has set for itself.

The Army’s plan for supporting and sustaining Stryker brigades in combat operations is still evolving. The Army will not be able to finish its support plan until November 2003, when the results from an operational evaluation of the first Stryker brigade will be issued. Before it can fully implement the support plan, the Army will also need to make funding and other decisions relating to implementing some of the plan’s logistical support concepts.

Deployment goals may need modification should the brigades’ design significantly change in response to direction from the Office of the Secretary of Defense to enhance the brigades’ capabilities.



Source: U.S. Army.

The Army plans to create six Stryker brigades through 2010.

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Abbreviation

OSD Office of the Secretary of Defense

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G A O

Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

June 30, 2003

Congressional Committees

The capability to rapidly deploy and effectively sustain combat forces over distant locations anywhere in the world is a major objective of the Army's planned 30-year transformation. According to the Army, current heavy forces lack strategic responsiveness and deployability, and they have significant logistical support requirements. On the other hand, the Army's current light infantry forces can be deployed rapidly and are easier to support once deployed, but they lack the combat power, survivability, and tactical mobility of the heavy forces. To address this gap in capabilities between heavy and light forces, the Army is organizing and equipping a rapidly deployable force, called Stryker brigades, intended to provide the combatant commanders with increased land power options, including the ability to execute and sustain early-entry operations, potentially into remote areas of the world.¹ Stryker brigades will also validate new doctrine and organizational structures and develop insights for subsequent transformation to the Army's future force—the Objective Force.² To this end, the Army has established a goal to deploy a combat capable Stryker brigade (including its 1,000 plus vehicles and pieces of equipment as well as 3,900 personnel) anywhere in the world within 4 days. Having realistic deployment goals is important to the Army for measuring its progress in creating forces to meet them, as well as to theater combatant commanders so that these forces can be integrated into contingency planning.

This is the sixth in a series of reports identifying key challenges the Army faces in implementing its transformation plans. (A list of related GAO products appears at the end of this report.) As with the other five, we initiated this review under the authority of the Comptroller General. Our objectives were to assess the Army's progress in (1) meeting its deployment goal for Stryker brigades and (2) supporting and sustaining a

¹ The Army plans to establish six Stryker brigades. Appendix II lists the brigades' locations and their planned initial operational capability dates.

² Beginning in 2010 and continuing beyond 2030, the Army plans to transition to its Objective Force. The Objective Force is the force that achieves the objectives of the Army's transformation. This future force will capitalize on advances in science and technology enabling the Army to equip its forces with significantly advanced systems such as the Future Combat System.

deployed Stryker brigade in combat operations. We also address potential changes in deployment and support plans the Army may need to make in response to direction from the Office of the Secretary of Defense to enhance the brigades' capabilities. We briefed your offices on the results of our work in November and December 2002. This report summarizes and updates those briefings and is being provided because of your committees' oversight responsibilities for these issues.

To conduct our review, we analyzed planning data on military air and sea mobility that the U.S. Transportation Command and the Military Traffic Management Command developed.³ We also reviewed the Army's concepts and plan for supporting Stryker brigades in an operational environment. We limited our review of mobility requirements to the strategic deployment of the brigades—we plan to address Stryker brigades' tactical mobility requirements and capabilities in another report we will be issuing later this year.⁴

Results in Brief

The Army has made significant progress in creating brigades that can be more rapidly deployed than heavy armored brigades, but it cannot deploy a Stryker brigade anywhere in the world within 4 days. By equipping Stryker brigades with 19-ton armored vehicles and reducing support structure and sustainment requirements, the Army will have achieved close to a 50 percent reduction in the brigade's deployment requirements compared to that of a heavier brigade equipped with Bradley fighting vehicles and Abrams tanks weighing 33 to 68 tons—along with their large logistical support structure. However, meeting the 4-day worldwide deployment goal of a brigade-size force would require more airlift than may be possible to allocate to these brigades; at present, it would take from 5 to 14 days, depending on destination, and require over one-third of the Air Force's C-17 and C-5 transport aircraft fleet to deploy one Stryker brigade by air. Because airlift alone may not be sufficient, the Army is now planning to use a combination of airlift and sealift to deploy the brigades. In the Stryker brigades, the Army has achieved forces that are more

³ The U.S. Transportation Command and its component commands (Air Mobility Command, Military Traffic Management Command, and Military Sealift Command) manage the Department of Defense's transportation system.

⁴ Strategic mobility is the movement of forces over long distances, such as from the continental United States to overseas locations. Tactical mobility is the movement of forces in an operational environment over shorter distances within an operational theater.

rapidly deployable than heavy forces and more lethal and mobile than light forces; however, without more realistic deployment goals, the brigades cannot be effectively integrated into theater combatant commanders' contingency planning efforts.

The Army's plan for supporting and sustaining Stryker brigades in combat operations is still evolving and cannot be considered finalized until a number of issues are resolved. The Army evaluated the Stryker brigades' support and sustainment capabilities for the first time during the congressionally mandated operational evaluation that was completed at the end of May 2003.⁵ The results from the operational evaluation will not be issued until November 2003, and they may lead to adjustments in the Army's plan. Funding decisions relating to implementing some of the plan's logistical support concepts, including Stryker armored vehicles and digital equipment replacement reserves, also will need to be made before the Army can fully implement its plan.

In addition, the Secretary of Defense wants modifications to the brigades to give them a higher level of combat capability and sustainability so that they are capable of being employed independently of higher-level command formations and support. Adding capabilities to the brigades — such as aviation and air defense—could significantly increase deployment and logistical support requirements, potentially requiring more time to deploy a Stryker brigade as well as different plans for supporting it.

We are making recommendations to the Secretary of the Army for examining alternative strategic deployment goals for Stryker brigades and setting goals that are based on a brigade's expected deployment timelines and possible modifications to the brigades.

In commenting on a draft of this report, the Department of Defense generally concurred with the report and stated that the Army continues to maintain 96-hour worldwide deployment as an overall program goal for Stryker brigade deployment and is working with the U.S. Transportation Command to reduce constraints that limit the Army's ability to meet that goal. We agree the 96-hour goal is a useful longer-term target and the Army should continue to work with the U.S. Transportation Command to reduce enroute constraints. However, without deployment timelines

⁵ The operational evaluation was mandated by the National Defense Authorization Act for Fiscal Year 2002, P.L. 107-107 (Dec. 28, 2001).

reflecting near-term deployment variables and alternatives, the Army does not have a reasonable baseline from which to measure its progress toward achieving its 96-hour goal; nor do the combatant commanders have information on expected Stryker brigade deployment capabilities.

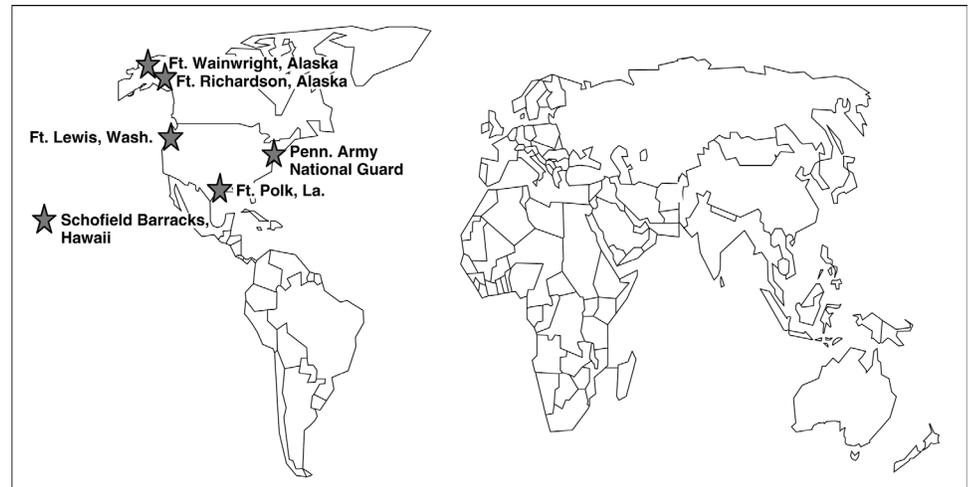
Background

In 1999 the Army announced its intentions to transform its forces over a 30-year period into a more strategically responsive force that could more rapidly deploy and effectively operate in all types of military operations, whether small-scale contingencies or major theater wars. Army transformation plans call for the ability to deploy a brigade anywhere in the world in 4 days, a division in 5 days, and five divisions within 30 days. The first step in this transformation is to form and equip six Interim Brigade Combat Teams, now called Stryker Brigade Combat Teams, as an early-entry force that can be rapidly deployed, supported anywhere in the world, and capable of conducting combat operations immediately upon arrival into a theater of operations, if required. Initially, the Army established a requirement for Stryker brigades of being capable of deploying anywhere in the world within 4 days after first aircraft liftoff. The Army has since made it a goal or target for the Stryker brigades, rather than a requirement, to help set a vision and design metric for developing the brigades.

According to the Army's organizational and operational concept for Stryker brigades, the brigades are designed to have higher levels of strategic and tactical mobility than existing Army forces. Strategically, the brigades are being organized, equipped, and configured to meet a 96-hour deployment standard. To help achieve the envisioned rapid deployability, the Army is developing logistical support plans and concepts that will permit Stryker brigades to deploy with fewer quantities of supplies and smaller numbers of support personnel and equipment than currently exists in heavier brigade-size units. At the tactical level, the brigades are to be capable of intratheater deployment by C-130 air transport. Key to their increased mobility is their primary combat platform, the Stryker armored vehicle. According to the Army, the Stryker armored vehicle will fulfill an immediate requirement for a vehicle that is air transportable any place in the world, arriving ready for combat. The Stryker is an eight-wheeled armored vehicle that will provide transport for troops, weapons, and command and control. The Stryker vehicle weighs about 19 tons, substantially less than the M1A1 Abrams tank (68 tons) and the Bradley fighting vehicle (33 tons), the primary combat platforms of the Army's heavier armored units.

The Army selected one light infantry brigade and one mechanized infantry brigade at Fort Lewis, Washington, to become the first two of six planned Stryker brigades. The Army completed a congressionally mandated operational evaluation of the first of these brigades at the end of May 2003, and it plans to report the results of the evaluation by November 2003. At that time, the Secretary of Defense is to certify to Congress whether or not the results of the operational evaluation indicate that the Stryker brigade's design is operationally effective and operationally suitable, at which time this brigade can be deployed overseas for the first time. The Army plans to complete the formation of the second of the two Fort Lewis brigades in 2004 and to form four more Stryker brigades from 2005 through 2010. The planned locations of the next four brigades (see fig. 1) are Fort Wainwright/Fort Richardson, Alaska; Fort Polk, Louisiana; Schofield Barracks, Hawaii; and a brigade of the Pennsylvania Army National Guard. Based on defense planning guidance, the Army is planning for the relocation of one Stryker brigade to Europe in fiscal year 2007.

Figure 1: Stryker Brigade Locations



Source: U.S. Army.

Progress Has Been Made, but the Army Cannot Currently Achieve Its Deployment Goal of 4 Days

Although Stryker brigades will be more rapidly deployable than Army heavy armored brigades, the Army cannot currently achieve its goal of deploying a Stryker brigade anywhere in the world within 4 days. The Army has achieved close to a 50 percent reduction in the Stryker brigades' deployment requirements compared to that of a heavier armored brigade, but the Stryker brigade's airlift requirements—which include moving about 1,500 vehicles and pieces of equipment and 3,900 personnel—are still sizable. Deployment times for Stryker brigades from their planned continental United States, Alaska, and Hawaii home stations to any one of several potential overseas locations would range from 5 to 14 days, depending on destinations. While the Army set out to design Stryker brigades to be a rapidly air deployable force, Army officials now recognize that airlift alone will not be sufficient and that some combination of airlift and sealift will likely be used to deploy the brigades. However, if sealift were used to deploy the Stryker brigades, deployment times to many global regions would be significantly longer than the 4-day goal the Army has set for itself.

Stryker Brigades' Deployment Requirements One-Half of Heavy Armored Brigades' but Still Sizable

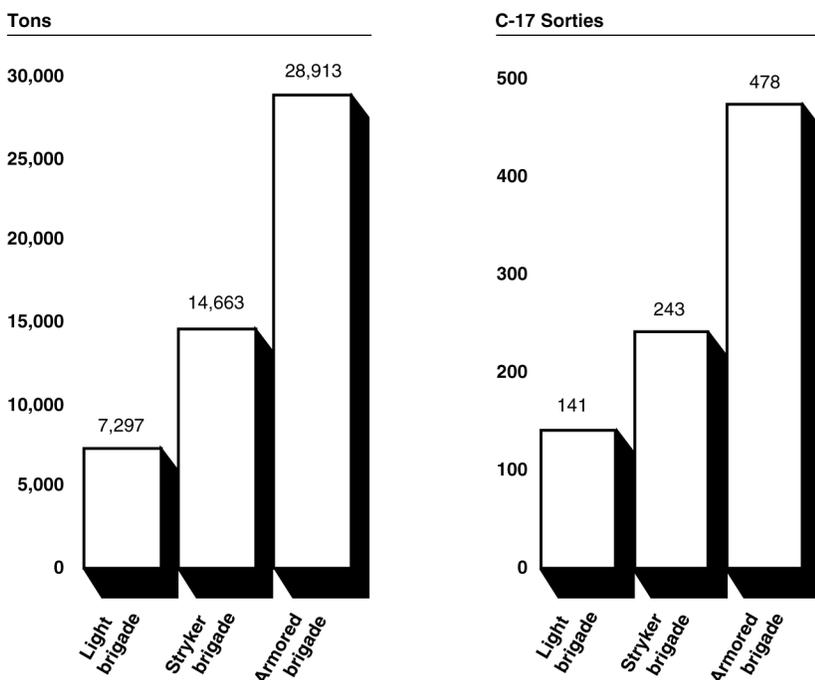
By equipping Stryker brigades with armored vehicles weighing about 19 tons, the Army has achieved close to a 50 percent reduction in the Stryker brigades' deployment requirement compared to that of a heavy armored brigade equipped with 68-ton Abram tanks and 33-ton Bradley fighting vehicles, along with their larger numbers of support vehicles, equipment, and personnel. Deploying a heavy armored brigade would require airlifting almost 29,000 tons of armored vehicles, equipment, and supplies and about 4,500 personnel. Deploying a Stryker brigade would require airlifting about 15,000 tons of vehicles, equipment, and supplies and about 3,900 personnel. Consequently, the amount of airlift that would be needed to deploy a Stryker brigade would be about one-half of the airlift aircraft needed to deploy a heavy armored brigade. Based on deployment planning assumptions the Army uses, about 243 C-17 strategic airlift sorties⁶ would be needed to airlift a Stryker brigade, compared to about 478 C-17 sorties needed to airlift a heavy armored brigade.

While the airlift requirement of a Stryker brigade is significantly less—about one-half that of a heavy armored brigade, moving a brigade's over 300 Stryker armored vehicles, over 1,200 trucks, utility vehicles, and support equipment, and 3,900 personnel is about twice the deployment requirement of an Army light infantry brigade. Deploying an Army light

⁶ In air operations, a sortie is defined as an operational flight by one aircraft.

infantry brigade would require airlifting about 7,300 tons of materiel and about 3,800 personnel, requiring about 141 C-17 airlift sorties. Figure 2 shows a comparison of Stryker brigades' airlift requirements to that of Army heavy armored and light infantry brigades.

Figure 2: Comparison of Army's Stryker Brigades' Airlift Requirements to That of Armored and Light Infantry Brigades



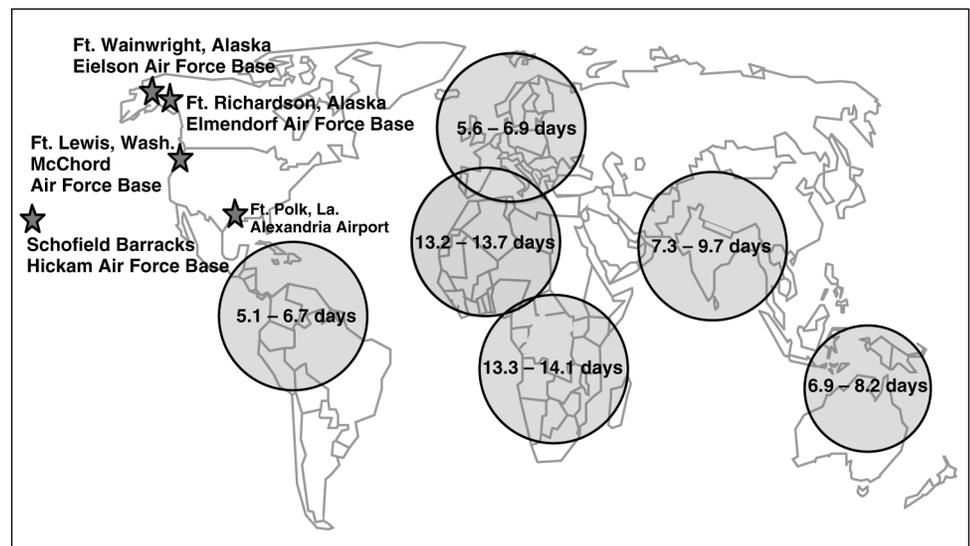
Source: GAO's analysis of U.S. Army and Military Traffic Management Command's, Transportation Engineering Agency data.

Airlift Not Sufficient to Meet Army's Four-Day Worldwide Deployment Goal for Stryker Brigades

The Army will likely not have the amount of airlift it would need to meet its goal of deploying a Stryker brigade anywhere in the world within 4 days. Deployment times from any one of the four planned Stryker brigade locations in the continental United States, Alaska, and Hawaii to selected representative locations in South America, the Balkans, South Asia, South Pacific, and Africa would range from about 5 days to

destinations in South America to about 14 days to destinations in Africa.⁷ The minimum time it would take to airlift a Stryker brigade would be about 5 to 6 days to South America and the Balkans, 7 days to South Asia and South Pacific regions, and 13 days to Africa. While these timelines are short of the Army's 4-day deployment goal, meeting them would offer joint task force commanders or theater combatant commanders more rapidly deployable forces than currently exists in heavy armored brigades and more lethal and mobile forces than currently exist in light infantry brigades. Figure 3 shows estimated ranges of Stryker brigade air deployment times from the four current and planned Stryker brigade locations to selected global regions. (See app. III for a summary of Stryker brigade deployment times by origins and destinations.)

Figure 3: Estimated Ranges of Stryker Brigade Air Deployment Times to Selected Global Regions



Source: GAO's analysis of U.S. Transportation Command data.

Note: Air deployment time is from the first aircraft's wheels-up at an aerial port of embarkation to the last aircraft's wheels-down at an aerial port of debarkation.

⁷ For the purpose of our analysis of deployment times we used four of the five current and planned brigade locations—Fort Lewis, Alaska, Fort Polk, and Hawaii. We treated the Alaska brigade as one brigade location, although this brigade will be split-based between Fort Richardson and Fort Wainwright. The bulk of the brigade is to be located at Fort Wainwright. We did not include the planned Pennsylvania National Guard brigade because it is not expected to become operational until 2010.

According to the U.S. Transportation Command's Stryker brigade air mobility deployment analysis, the Army's deployment goal for Stryker brigades has significant implications for the U.S. Transportation Command and the defense transportation system. According to this analysis, the Army must reduce its transportation requirements and simultaneously work with the U.S. Transportation Command and the services to improve deployment timelines.

A 2002 Rand report of Stryker brigade deployment options, sponsored by the U.S. Air Force, also concluded that Stryker brigades cannot be deployed by air from the continental United States to distant overseas locations in 4 days. The study found that it is possible to achieve global air deployment timelines on the order of 1 to 2 weeks by using a combination of continental United States based brigades, a Stryker brigade forward-based in Germany, and regional preposition sites. According to the study, prepositioning of equipment or overseas basing of forces is the single most effective way to increase the responsiveness of Army forces for operations in key regions.

Under the 2002 Defense Planning Guidance, the Army is planning for the relocation of one Stryker brigade to Europe in fiscal year 2007. By air, a brigade based in Germany, for example, could reach some global regions in less time than it could from the four currently planned brigade locations. From Ramstein Air Base in Germany, minimum air deployment times to sub-Saharan Africa would be 7 to 9 days, compared to a minimum of 13 days to 14 days from the other brigade locations. From Germany to the Balkans, it would take 5 days to airlift a Stryker brigade, compared to about 6 days to 7 days from the other locations. Although the Army recognizes that some prepositioning of Stryker brigade equipment overseas would add to a brigade's strategic responsiveness and is considering it as a future option, Army officials told us that it would be too costly to do so at this time.

Based on our analysis of the U.S. Transportation Command's air deployment planning factors and airlift allocation assumptions,⁸ achieving

⁸ Some of the significant strategic air mobility and aircraft allocation assumptions the U.S. Transportation Command used in its analysis include the Stryker brigade is the primary airlift claimant in a surge operation; the airlift fleet does not include aircraft withheld for maintenance, high priority missions, or training; air mobility infrastructure will support 20-minute departure intervals; and sufficient reserve augmentation is available to provide support for increased airlift requirements.

the 5 to 14 day air deployment timelines would be difficult because it would require the Air Force to dedicate about one-third of its projected 2005 primary strategic airlift aircraft fleet of C-17s and C-5s for transporting only one Stryker brigade. Obtaining this amount of airlift for deploying one Stryker brigade would require allocating 31 percent of the Air Force's total 2005 inventory of C-17 aircraft and 38 percent of its C-5 aircraft inventory.⁹ Obtaining an airlift allocation larger than this would be possible—if airlifting a Stryker brigade is a National Command Authority top priority and absent competing demand elsewhere for airlift aircraft. Table 1 shows the U.S. Transportation Command's estimated airlift allocation¹⁰ and the percentages of the projected 2005 total airlift inventory of C-17 and C-5 aircraft needed to strategically airlift one Stryker brigade.

Table 1: Percentages of U.S. Air Force's Total Airlift Inventory in 2005 Needed to Strategically Airlift One Stryker Brigade

Airlift aircraft	Projected total 2005 aircraft inventory	Estimated airlift allocation	Percent of total inventory ^a
C-17 Globemaster	136	42	31
C-5 Galaxy	113	48	38
Total	249	90	36

Sources: U.S. Transportation Command and U.S. Air Force.

^aPercentages are rounded.

Army Plans to Use a Combination of Airlift and Sealift to Deploy Stryker Brigades

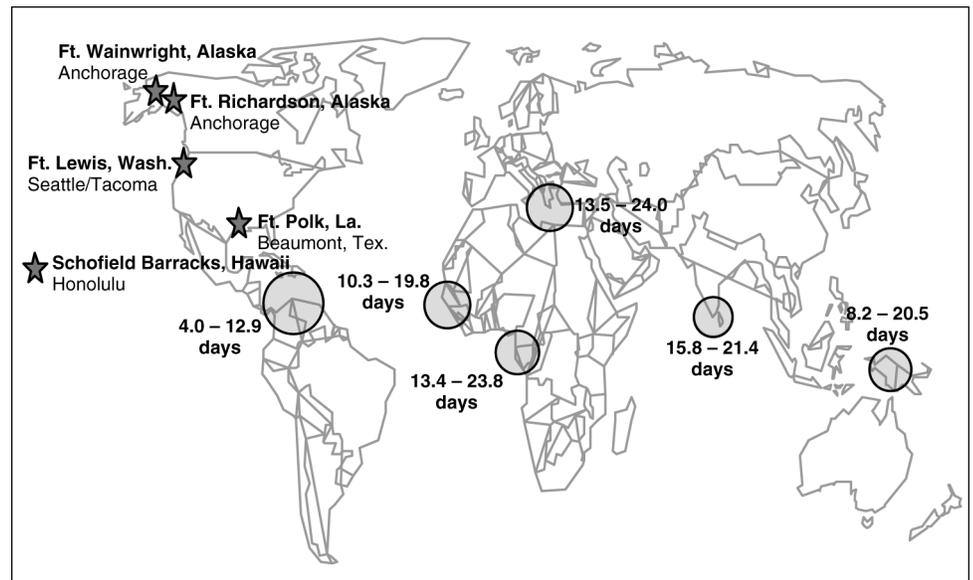
Because it may not always be possible to obtain sufficient airlift to deploy an entire Stryker brigade, Army officials anticipate using a combination of airlift and sealift to deploy the brigades, although sea deployment time would be slower than the Army's 4-day worldwide deployment goal to most locations. Army officials told us that current plans are to deploy about one-third of a Stryker brigade by air and the remainder of the brigade would be deployed by sea. While some areas in South America could be reached by a Stryker brigade located at Fort Polk, Louisiana, via gulf coast ports in about 4 days, sea deployment times to South America and other global regions from the three other planned Stryker brigade

⁹ According to Air Force budget documents, these are the total numbers of C-17 and C-5 aircraft expected to be in the Air Force's aircraft inventory through 2005.

¹⁰ According to the U.S. Transportation Command, this allocation is a reasonable approximation of the airlift a Stryker brigade could claim if it was the principal ground force to move early in a small-scale contingency operation.

locations would take longer. For example, sailing time for a Fort Lewis-based Stryker brigade from Seattle/Tacoma, Washington, would be about 10 days to ports in northern regions of South America and more than 2 weeks to ports in West Africa. From Alaska, sailing time to any of the eight overseas destinations we included in this analysis would take from 12 days to 24 days. Similarly, sailing times to the Balkans from any one of the four planned Stryker brigade locations would take a minimum of 2 weeks to over 3 weeks. With a Stryker brigade forward based in Europe, sea deployment times to the Balkans from seaports in Germany, for example, could be reduced to about 7 days. Figure 3 shows estimated ranges of Stryker brigade sailing times from the four current and planned Stryker brigade locations to selected global regions. (See app. IV for a summary of sea deployment times by origins and destinations.)

Figure 4: Estimated Ranges of Stryker Brigade Sea Deployment Times



Source: GAO's analysis of Military Traffic Management Command data.

Note: Sea deployment times are sailing days from a port of embarkation to arrival at an overseas port of debarkation.

In addition to the sailing times needed to reach overseas destinations, it would take days to transport a Stryker brigade and all of its vehicles and equipment from its home installation to a seaport. For example, the Stryker brigade to be located in Alaska would need to travel about 350 miles by rail or highway from Fort Wainwright, near Fairbanks, to seaports in or near Anchorage. In addition, loading and unloading cargo transport

ships take much longer than loading and off-loading aircraft. According to Army deployment planning data, it would take about 2 days for loading ships and another 2 days to unload them after arrival, compared to hours for loading and unloading aircraft. Furthermore, many areas of the world in which Stryker brigades are anticipated to operate have no access to a seaport, and not all seaports would have the capacity to handle large deep-draft vessels. Additional time would also be needed for Army forces deployed by sea to move from a seaport to an in-land area of operations, although a Stryker brigade would be able to move to in-land locations faster than a heavy armored brigade because Stryker armored vehicles can be driven while heavier armored vehicles and tanks might require rail or truck transport. Also, a deployed Stryker brigade would need less time than a heavy armored brigade would need to unload at a seaport, assemble, and begin operations: Stryker brigades are organized and equipped to begin operations soon after arrival in an operational theater, carrying up to 3 days' supplies of the fuel and ammunition and sustainment items, allowing the brigades to immediately conduct a combat mission. This contrasts with an Army armored or mechanized brigade, which would need days to draw the fuel, ammunition, and other supplies it would need before it can begin operations.

Army's Plan for Supporting and Sustaining Stryker Brigades in Combat Operations Is Still Evolving

The Army's plan for supporting and sustaining Stryker brigades in combat operations is still evolving and cannot be considered finalized until a number of issues are resolved. These issues include the results from the operational evaluation of the first brigade, funding questions, and decisions relating to implementing some of the plan's logistical support concepts.

The Army will not be able to finish its support plan until November 2003, when results from the operational evaluation of the first Stryker brigade will be issued. The Army conducted the operational evaluation in April and May 2003 to assess the first Stryker brigade's overall operational effectiveness and suitability. The operational evaluation included the logistical support plan and processes that augment the brigade's limited capabilities to perform basic maintenance, supply, and transportation services. To make Stryker brigades easier to deploy and support, the Army designed the brigades with a support structure that is only about one-third the size of that found in a heavy armored brigade. Thus, Stryker brigades do not have the capability to sustain operations without the assistance of external support organizations and resources. Contractors will provide a key part of this external support to service and maintain newly fielded Stryker armored vehicles and complex digital command, control,

communications, and computer equipment. Contractor logistics support will be needed to support the Stryker vehicles and digital systems at least until these systems are fully fielded. Also, instead of transporting large inventories of ammunition spare parts, and other supplies into an area of operation—as a heavy armored brigade would do—Stryker brigades are to sustain themselves in extended operations by having these items delivered from numerous locations outside the area of operation, such as Army depots and theater support bases, where they will be stored and configured for rapid shipment and distribution to the brigades as they are needed.

Because these support and sustainment processes are new concepts and key elements of the Army's support plan for Stryker brigades, the Army will complete the plan after it has reviewed the results and lessons learned from the operational evaluation. Based on the results, the Army plans to make any adjustments or modifications it determines are necessary before the plan becomes final. Before it can fully implement the support plan, the Army will need to determine the cost and decide whether it will fund the acquisition of vehicles and equipment replacement reserves. The brigades are designed to do only limited maintenance for vehicles and equipment on the battlefield; therefore, the Army's support plan calls for rapidly evacuating and replacing items needing major maintenance or repair with what the Army calls ready-to-fight replacements. The plan depends on having in reserve and readily available sufficient numbers of vehicles and essential equipment, such as digital components, for rapid shipment into an area of operation. Before the Army can make a final funding decision, it will first need to determine the types, amounts, and total cost of the ready-to-fight replacements that would be needed. As of May 2003, the Army had not made a final decision as to the number, types, and configuration of the ready-to-fight vehicles, nor the method of their delivery to an area of operations. Additionally, to reduce the amount of materiel that is deployed and stockpiled within an operational theater, the Army's Stryker brigade support plan includes measures for rapidly distributing directly to the brigades pre-configured loads of essential sustainment supplies such as food, repair parts, and ammunition, as they are needed. Before the Army can implement the plan, it will need to finish the instructions and guidelines that will identify the types and amounts of supplies to be distributed in configured loads and the locations and facilities (including defense supply depots, Stryker brigade installations, and theater support bases) where configured loads are to be built and stored. The Army also still will need to identify the personnel and obtain the equipment, supplies, and funding that will be needed to manage and carry out its planned configured load distribution system.

Army's Plans for Deploying and Sustaining Stryker Brigades Could Change

The Army's current plans for deploying and sustaining Stryker brigades could change after the Office of the Secretary of Defense (OSD) reviews options it directed the Army to provide for enhancing the brigades' capabilities. OSD wants the Army to modify the brigades to be more like the Objective Force units the Army is developing. OSD has directed the Army to present a plan by July 8, 2003, that provides options for adding to the brigade's enhanced combined arms capabilities. Currently, the brigades do not have capabilities such as aviation and air defense. Such changes would enhance the overall organizational effectiveness of the brigades, but they also could increase deployment and support requirements, potentially making the brigades more difficult to deploy by air and to support.

OSD directed the Army to provide options for enhancing the Stryker brigades to ensure that they would provide a higher level of combat capability and sustainability across a broader spectrum of combat operations than those for which they were originally conceived, along with the capability of being employed independently of higher-level command formations and support. According to OSD, this additional capability will result in Stryker brigades that are more prototypical of the combined arms Objective Force units the Army is developing and would enhance the transformation of the Army by fielding added capabilities sooner. OSD has directed the Army not to expend funds in fiscal year 2004 for the fifth and sixth Stryker brigades until the Army presents a plan to provide options for enhancing all but one of the brigades.¹¹ OSD wants the Army to remodel the brigades to be distinctively different than their original design, with enhanced combined arms capabilities that might include aviation, air defense, sensors, and armor.

Many factors—including the numbers, size, and types of equipment—affect the Stryker brigades' deployment and logistical support requirements. Based on the U.S. Transportation Command's deployment-planning factors, every additional 1,000 tons of weight to be airlifted reduces aircraft range by 250 nautical miles and adds another 15 aircraft loads. If Stryker brigades were redesigned to include an aviation unit, for example, transporting the unit's helicopters from the continental United States to overseas destinations would most likely need to be done by sea,

¹¹ The fourth Stryker brigade will be the 2nd Armored Cavalry Regiment (Light) located at Fort Polk, Louisiana. According to Army plans, this brigade is already being designed to have some of the combined arms capabilities that OSD wants the Army to add to the five other brigades.

and it would take days to unload them after arrival into a theater of operations. In addition, adding aviation maintenance personnel and the equipment that is needed to support an aviation unit would also substantially increase deployment requirements. Once deployed, the requirements for logistical support, such as fuel and spare parts, would increase well beyond that for which the Army's current Stryker brigade support plan anticipates. Furthermore, the Stryker brigades' support structure as currently designed does not have the levels of supply and support personnel or the necessary equipment to move and distribute the fuel, spare parts, and ammunition a brigade would need to support an aviation unit in combat operations.

Conclusions

With the Stryker brigades, the Army has achieved its intent to create rapidly deployable yet lethal forces, but currently the brigades' requirements for airlift are too large for airlift alone to be a practical option for strategically deploying an entire brigade within its goal of 4 days. The Army plans to use some combination of strategic airlift and sealift, but it has not established strategic deployability timelines for a Stryker brigade that reflect the modes of transportation to be used, the wide range of deployment times that vary in terms of the size of the deployed force, and the brigades' location and destination. In addition, deployment goals may need further modification should the brigade's organizational and operational design significantly change in response to direction from OSD to enhance the brigade's capabilities. While the 4-day deployment goal has created a strategic purpose and vision, and is serving as a constructive design metric for developing the brigades, such a goal is not a realistic standard by which to measure the considerable progress the Army is making toward creating more rapidly deployable forces. Without deployment goals that reflect the wide range of deployment variables and alternatives, the Army does not have a reasonable baseline from which to measure its progress toward achieving desired deployment timelines for Stryker brigades as well as for the future Objective Force; nor do the theater combatant commanders have information on expected deployment capabilities they would need in order to plan for the use of a Stryker brigade in their theater.

Before the first Stryker brigade is certified for overseas deployment, the Army will need to complete its support plan and make any necessary adjustments or modifications to the plan based on the results of the operational evaluation.

Recommendations for Executive Action

We recommend that the Secretary of the Army examine alternatives to the 96-hour worldwide deployment goal for Stryker brigades and work with the U.S. Transportation Command and its components to set realistic deployment timelines for the brigades that

- reflect the use of both airlift and sealift, the size of the deployed force, a brigade's location, and its destination and
- take into account any organizational or operational changes to the brigades resulting from modifications and enhancements directed by OSD.

Agency Comments and Our Evaluation

In commenting on a draft of this report, the Department of Defense generally concurred with the report and stated that the Army continues to maintain 96-hour worldwide deployment as an overall program goal for Stryker brigade deployment, and is working with the U.S. Transportation Command to reduce constraints that limit the Army's ability to meet the goal.

In responding to our recommendation that the Secretary of the Army examine alternatives to the 96-hour worldwide deployment goal for Stryker brigades and work with the U.S. Transportation Command to set realistic deployment timelines, the department stated that the Army is committed to its 96-hour goal as a target that it needs to continue to work toward in order to provide the necessary capabilities to combat commanders within required response times. The department noted that achieving this goal requires a concerted effort on the part of all services and the U.S. Transportation Command to ensure that enroute constraints are reduced. We agree that the 96-hour goal is a useful longer-term target and that the Army should continue to work in concert with the Transportation Command and the other services to achieve it. However, we continue to believe other alternatives to the 96-hour goal should be considered for measuring progress in the near-term. As we noted in the report, the Army cannot currently air deploy a Stryker brigade anywhere in the world within 96 hours and if sealift were used to deploy the Stryker brigades, deployment times would be significantly longer than the 96-hour deployment goal. We believe that without deployment timelines reflecting near-term deployment variables and alternatives, such as brigade locations and the use of sealift, the Army does not have a reasonable baseline from which to measure its progress toward achieving its 96-hour deployment goal; nor do the combatant commanders have information on expected Stryker brigade deployment capabilities. Thus, we continue to believe our recommendation has merit.

In responding to our recommendation for setting realistic deployment timelines for Stryker brigades that take into account organizational or operational changes to the brigades resulting from any modifications and enhancements directed by OSD, the department said the Army should maintain its 96-hour deployment goal, as it is a goal and not a deployment standard. The department also noted that when the results of the OSD-mandated study are approved and published, the Army would work with the combatant commanders and the U.S. Transportation Command to update the standing contingency plans. We agree the Army should work with the combatant commanders and the U.S. Transportation Command to update contingency plans based on the final outcome of the OSD-mandated study. However, if the results of the study significantly increase the Stryker brigades' deployment and logistical support requirements, the Army would need to reexamine brigade deployment goals as we have recommended.

Appendix I contains the full text of the department's comments.

Scope and Methodology

To assess the Army's progress in meeting its 96-hour deployment goal for Stryker brigades, we obtained documents and interviewed officials from the U.S. Transportation Command, the Air Mobility Command, and the Military Traffic Management Command. To determine Stryker brigade air deployment times and airlift allocation estimates, we used data from a U.S. Transportation Command's air mobility deployment analysis conducted for the Army in April 2002. To determine sea deployment times, we analyzed data from the Military Traffic Management Command's Transportation Engineering Agency. In addition, we interviewed officials and obtained documents from the Army's Deployment Process Management Office and from Army headquarters staff elements responsible for operations and plans and logistics. We performed site visits to Stryker brigade home installations at Fort Lewis, Washington, and Fort Richardson and Fort Wainwright, Alaska; we also interviewed U.S. Army I Corps and U.S. Army Alaska and Garrison Command officials at these locations. We also toured deployment processing and airfield facilities and obtained information about infrastructure improvements planned at these locations to validate key assumptions of the U.S. Transportation Command's air mobility analysis regarding air deployment infrastructure capabilities. We did not visit Fort Polk, Louisiana; Schofield Barracks, Hawaii; or the Pennsylvania National Guard. These locations are the last three of the six-planned Stryker brigades that are to be formed from 2006 through 2010. Because it is not planned to become operational until 2010, we excluded from our review the planned Pennsylvania

National Guard Stryker brigade. We also did not consider possible future developments in lift assets such as High Speed Vessels or Ultra Heavy Lift Aircraft in our assessment of Stryker brigade deployability.

To obtain information on the Army's plan for supporting Stryker brigades in combat operations, we analyzed Army information on the organizational design and operational concepts for Stryker brigades to gain an understanding of the logistical challenges of supporting and sustaining the brigades. We interviewed officials at Fort Lewis and U.S. Army Alaska for information relating to support and sustainment plans for the first three Stryker brigades. In addition, we reviewed documents and interviewed officials from Army headquarters staff elements responsible for operations and plans, logistics, and force development. We also interviewed and obtained documents from the Army's Forces Command, the Combined Arms Support Command, and the Tank-automotive and Armaments Command to learn about support and sustainment options for the Stryker brigades.

Our review was conducted from April 2002 through March 2003 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Secretary of Defense, the Secretary of the Army, and the Director of Management and Budget. We will also make copies available to others upon request. In addition, this report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please call me at (202) 512-8365. Major contributors to this report were Reginald L. Furr, Jr.; Kevin C. Handley; Karyn I. Angulo; Pat L. Seaton; Frank C. Smith; and Susan K. Woodward.

A handwritten signature in black ink, appearing to read "W. Solis". The signature is fluid and cursive, with a large initial "W" and a long, sweeping underline.

William M. Solis
Director, Defense Capabilities
and Management

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Appendix I: Comments from the Department of Defense



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JUN 23 2003

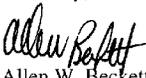
Mr. William M. Solis
Director, Defense Capabilities and Management
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Solis,

This is the Department of Defense (DoD) response to the GAO draft report, "MILITARY TRANSFORMATION: Realistic Deployment Timelines Needed for Army Stryker Brigades," dated May 28, 2003 (GAO Code 350163/GAO-03801).

The Department generally concurs with the report. The Army continues to maintain the 96-hour worldwide deployment as an overall program goal for Stryker deployment, and is working with the U.S. Transportation Command to reduce constraints that limit the Army's ability to meet that goal. Detailed DoD comments on the draft GAO recommendations are provided in the enclosure. The DoD appreciates the opportunity to comment on the draft report.

Sincerely,


Allen W. Beckett
Principal Assistant

Attachment
As stated



**GAO DRAFT REPORT DATED MAY 28, 2003
GAO CODE 350163/GAO-03-801**

**“MILITARY TRANSFORMATION” Realistic Deployment Timelines Needed
for Army Stryker Brigades”**

**DEPARTMENT OF DEFENSE COMMENTS
TO THE RECOMMENDATIONS**

RECOMMENDATION 1: The GAO recommended that the Secretary of the Army examine alternatives to the 96-hour worldwide deployment goal for Stryker brigades and work with the U. S. Transportation Command and its components to set realistic deployment timelines for the brigades that reflect the use of both airlift and sealift, the size of the deployed force, a brigade’s location, and its destination. (p. 18/GAO Draft Report)

DOD RESPONSE: DOD partially concurs. The Department agrees that the 96-hour goal should not be construed as a standard. The 96-hour goal is a target the Army needs to continue to work to achieve in order to provide the necessary capabilities to Combatant Commanders within the required response times that they set. The Army is committed to its 96-hour goal to ensure that the Army is capable of meeting any Combatant Commanders’ deployment requirement. Achieving this goal requires a concerted effort on the part of all services and U. S. Transportation Command (TRANSCOM) to ensure that enroute constraints are reduced. Examples of these constraints include the number of “hot pads” available at aerial points of embarkation (APOEs), most on the ground (MOG) constraints at Aerial Points of Debarkation (APODs), and the inability to position the Global Reach package (refueling, tanker airlift control element (TALCE), maintenance). The Army and TRANSCOM continue to pursue methods of overcoming these barriers.

RECOMMENDATION 2: The GAO recommended that the Secretary of the Army examine alternatives to the 96-hour worldwide deployment goal for Stryker brigades and work with the U. S. Transportation Command and its components to set realistic deployment timelines for the brigades that take into account any organizational or operational changes to the brigades resulting from modifications and enhancements directed by the Office of the Secretary of Defense. (p. 18/GAO Draft Report)

DOD RESPONSE: Partially concur. The Army should maintain its 96-hour deployment goal as it is a goal and not a deployment standard. As the draft report states, the 96-hour goal has provided a most useful “forcing function” to define and shape the Interim Force, contributing to the Army’s developing more rapidly deployable forces. The Army remains focused on its requirement to provide the necessary combat capabilities to the Combatant Commanders in 96 hours. The Army continues to pursue remedies to reducing constraints as mentioned above with TRANSCOM. When the results of the OSD-mandated study are approved and published, the Army will work with the Combatant Commanders and TRANSCOM to update the standing contingency plans.

Appendix II: Stryker Brigade Locations and Planned Initial Operational Capability Dates

Brigade	Location	Planned initial operational capability dates
1	Fort Lewis, Washington	2003
2	Fort Lewis, Washington	2004
3	Fort Wainwright/Fort Richardson, Alaska	2005
4	Fort Polk, Louisiana	2006
5	Schofield Barracks, Hawaii	2007
6	Pennsylvania National Guard	2010

Source: U.S. Army.

Appendix III: Stryker Brigade Air Deployment Times By Origin and Destination

		Destinations and air deployment times in days							
Brigade no.	Origin installation and airport	South America		West Africa	Sub-Saharan Africa		South Asia	South Pacific	Europe
		Columbia	Venezuela	Sierra Leone	Angola	Congo	Sri Lanka	New Guinea	Balkans
1 & 2	Ft. Lewis/ McChord Air Force Base	5.3	6.7	13.4	13.6	13.9	8.1	7.3	6.3
3	Ft. Wainwright/ Eielson Air Force Base	5.6	5.6	13.6	13.7	14.0	7.3	7.0	5.9
3	Ft. Richardson/ Elmendorf Air Force Base	5.6	5.6	13.6	13.7	14.0	7.3	7.0	5.6
4	Ft. Polk/ Alexandria Airport	5.1	5.2	13.2	13.3	13.6	9.7	8.2	5.6
5	Schofield Barracks/ Hickam Air Force Base	5.6	5.6	13.7	14.0	14.1	7.5	6.9	6.9

Source: GAO's analysis of U.S. Transportation Command data.

Note: Air deployment time is from the first aircrafts' wheels-up at an aerial port of embarkation to the last aircrafts' wheels-down at an aerial port of debarkation.

Appendix IV: Stryker Brigade Sea Deployment Times by Origin and Destination

		Destinations and sailing time in days								
Brigade no.	Origin installation and airport	South America		West Africa	Sub-Saharan Africa		South Asia	South Pacific	Europe	
		Columbia	Venezuela	Sierra Leone	Angola	Congo	Sri Lanka	New Guinea	Balkans	
1 & 2	Ft. Lewis/ Seattle-Tacoma, Wash.	9.5	10.5	17.3	21.3	20.4	18.3	13.2	21.5	
3	Ft. Wainwright & Ft. Richardson/ Anchorage, Alaska	12.0	12.9	19.8	23.8	22.9	16.5	11.9	24.0	
4	Ft. Polk/ Beaumont, Tex.	4.0	4.3	10.3	14.4	13.4	21.4	20.5	13.5	
5	Schofield Barracks/ Honolulu, Hawaii	10.7	11.6	18.5	22.5	21.5	15.8	8.2	22.7	

Source: GAO's analysis of Military Traffic Management Command, Transportation Engineering Agency data.

Note: Sea deployment times are sailing days from a port of embarkation to arrival at an overseas port of debarkation.

Related GAO Products

Military Transformation: Army's Evaluation of Stryker and M-113A3 Infantry Carrier Vehicles Provided Sufficient Data for Statutorily Mandated Comparison. [GAO-03-671](#). Washington, D.C.: May 30, 2003.

Army Stryker Brigades: Assessment of External Logistic Support Should Be Documented for the Congressionally Mandated Review of the Army's Operational Evaluation Plan. [GAO-03-484R](#). Washington, D.C.: Mar. 28, 2003.

Military Transformation: Army Actions Needed to Enhance Formation of Future Interim Brigade Combat Teams. [GAO-02-442](#). Washington, D.C.: May 17, 2002.

Military Transformation: Army Has a Comprehensive Plan for Managing Its Transformation but Faces Major Challenges. [GAO-02-96](#). Washington, D.C.: Nov. 16, 2001.

Defense Acquisition: Army Transformation Faces Weapons Systems Challenges. [GAO-01-311](#). Washington, D.C.: May 21, 2001.

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