UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

May 14, 1981

COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION

B-199148

The Honorable Max S. Baucus
United States Senate

Dear Senator Baucus:

Subject: The Federal Role in Developing Grain Subterminals Should Be Coordinated by USDA (CED-81-101)

This report is in further response to your request that we undertake a comprehensive review of grain transportation problems, including the role of grain subterminals (large transient grain storage installations). We are issuing this report on subterminals separately because the subject matter is more specific than the general topic covered by our report on grain transportation problems ("U.S. Grain Transportation Network Needs System Perspective To Meet Future World Needs," CED-81-59, Apr. 8, 1981.)

In 1980 the Congress enacted the Agricultural Subterminal Storage Act (Public Law 96-358), to help develop subterminals through State and regional planning grants and construction loan guarantees. The Secretary of Agriculture was to administer the act's provisions.

Subterminals facilitate, through large scale operations, the efficient rail shipment and receipt of agricultural commodities by making the most effective use of rail cars. Subterminals developed in the midwestern corn and soybean 1/ producing areas as crop

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1/Though soybeans are actually a legume, they are handled and transported like grain, and for the purpose of this report are considered a grain.

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production and foreign grain demand increased and railroad multiple car 2/ and unit-train 3/ rates developed.

Farmers, grain elevators, and railroads can all benefit from subterminals because subterminals allow grain to be transported more efficiently. However, subterminals are not suitable for all regions. If they are not located in the right places and operated properly, costs can exceed benefits.

Various Federal programs exist to provide some funding for subterminals, but the Federal Government does not have a focal point to coordinate subterminal funding. Our review identified a need for a focal point for obtaining Federal subterminal planning, construction, and improvement funds because (1) a variety of Federal agencies have funds (about $2 billion), some of which could be used for subterminal development and (2) there is a lack of knowledge about these programs in the agricultural community. To assure that Federal funds available for subterminal development are used productively, the Secretary of Agriculture should establish a focal point to coordinate all Department of Agriculture (USDA) programs involving subterminal development and provide information on programs in other Federal agencies that can provide funds for subterminal development.

SUBTERMINALS BENEFIT FARMERS, ELEVATORS, AND RAILROADS

By accumulating large volumes of grain to take advantage of multiple-car and unit-train shipments, subterminals have provided benefits to farmers, elevator operators, and railroads.

Farmers have benefited from subterminals in two ways: they receive higher prices for their grain and they are able to sell more grain when prices rise. Farmers can receive higher prices for their grain primarily because transportation costs are reduced. For example, one South Dakota elevator manager reported that the

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2/Multiple cars are groupings of at least several railroad cars carrying the same commodity and moving from point of origin to destination and return. Multiple-car shipments provide fast turnaround time (the time needed to get from origin to destination and return), high car-utilization rates, and increase efficiency in grain movement. As a result, multiple-car shipment rates are generally lower than rates for shipping single carloads.

3/A unit train is an entire train carrying the same commodity and moving intact from point of origin to destination and return. Unit trains provide the same benefits as multiple car shipments described above but to a greater extent. As a result, unit train rates are generally lower than multiple-car and single-car shipment rates.

lower rate for 25 railcars of milo, a grain crop, moving from South Dakota to Gulf ports allowed him to increase his bid to farmers by about 25 cents per hundredweight of milo. Also, farmers in North Central Iowa reported that bids at elevators with unit-train loading facilities annually average about 4-6 cents higher per bushel on corn and 10-12 cents higher on soybeans than at elevators without multiple-car or unit-train loading facilities.

Elevators that have become subterminals by constructing new, larger facilities or upgrading existing ones have benefited by significantly increasing their grain volume. The larger volumes reduce per-bushel handling costs by spreading fixed costs over larger grain volumes. Subterminals can also afford to hire specialized people to manage and merchandise the large grain volumes and negotiate favorable prices. Additionally, subterminals generally have lower variable costs than older grain elevators and pay less for transportation due to lower multiple-car and unit-train rates. All of these factors lead to lower unit costs and allow subterminal operators to bid higher for farmer's grain, generating the larger volumes needed to lower unit costs. These lower unit costs, combined with the larger grain volumes that subterminals handle, generally result in larger subterminal earnings compared to single-car grain elevators.

Railroads have benefited from subterminals by becoming more price competitive with barges and trucks through the cost efficiencies of multiple-car and unit-train shipments, thus softening the decline in railroads' market share of grain shipment. In addition, the faster turnaround times of multiple-car and unit-train shipments have enabled railroads to haul more grain with the existing fleet of rail cars.

SUBTERMINALS HAVE POTENTIAL TO FURTHER IMPROVE GRAIN MARKETING EFFICIENCY, BUT CONSTRAINTS AND PROBLEMS EXIST

The potential exists for further development of subterminals. Subterminal operations are more adaptable to high-yield-per-acre crops such as corn (which can take advantage of large-scale storage facilities), but also may be feasible for wheat and lower yielding crops-per-acre in certain circumstances. Grain-receiving areas, such as feed lots and milling facilities, may also benefit from efficient transportation resulting from subterminal development. There are, however, problems involving subterminals that can adversely affect their operations and future development. These include the failure of some railroads to offer multiple-car and unit-train rates, overdevelopment, and port congestion.

Subterminals have potential in high-volume grain-production areas and grain-receiving areas

High-yield crops, which can provide a trainload of grain within a relatively small growing area, have triggered the growth in subterminal development. Corn-producing areas (Iowa, Illinois, Nebraska, Minnesota, Ohio, and Indiana), with high yields-per-acre, have had more subterminal development than areas where other grains with lower yields-per-acre, such as wheat, are dominant.

Some people in the grain trade have expressed uncertainty however, about whether subterminals can be used effectively in wheat-producing areas, according to Dr. Phillip Baumel, a grain subterminal expert who served as our consultant. The low-density of wheat production may not support subterminals, which need to fill 75-125 cars in order to support unit trains. One major western railroad, however, began to offer 26 and 52 multiple-car rates on wheat shipped from Montana, North Dakota, and South Dakota to Pacific Northwest ports, effective December 1, 1980. Also, a South Dakota elevator that uses 25-car units indicated that multiple-car shipments of wheat are feasible. Dr. Baumel stated that, in areas where wheat yields are relatively high, 50-car units might be feasible.

Grain processors and feeders could also benefit from subterminals. Multiple-car rates are now being published for shipping grain to grain-processing plants. Multiple-car rates could also be used in areas that receive grain to feed livestock and poultry. These include dairy areas in States like New York, as well as poultry-producing States like Delaware, Maryland, Georgia, Alabama, Mississippi, and Arkansas. At the present time, grain is shipped to these areas in single- or three-car shipments at relatively high rates. A retired USDA official, now a subterminal consultant, believes that if subterminals were built in these States to receive grain in low-cost multiple-car or unit trains and the grain was distributed by truck to small users, these areas would benefit from lower transportation costs and at the same time be assured of a supply of grain stored in the receiving subterminal. Also, the grain and railroad industries would benefit from the more efficient use of railroad equipment.

Although subterminal development has occurred in the corn belt States, some areas within these States may have more development potential. For example, 48 Iowa counties, mainly in the southern and eastern parts of the State, do not have subterminals because they have access to alternative transportation modes, namely barges in eastern Iowa and truck markets in Kansas City and St. Joseph, Missouri, for southern Iowa grain. With increasing fuel costs, the potential for subterminal development in these counties becomes greater.

Problems with effective subterminal development

The benefits of subterminal development depend largely on whether railroads will share their cost savings from multiple-car and unit-train operations with grain shippers or grain receivers. Sharing cost savings, through lower rail rates, provides the economic motivation to build and operate subterminals. Some railroad companies, such as the one previously mentioned, recently have begun to offer multiple-car and unit-train rates in certain areas.

Overdevelopment of subterminals is occurring in some areas of the corn belt due to inadequate planning. At the 1979 Senate Agriculture Committee hearings on the Agricultural Subterminal Storage Act, the President of the Omaha Bank for Cooperatives 1/ stated that northern and western Iowa may now have more subterminals than needed. During the same hearings, an Iowa subterminal operator testified that too many subterminals have been built in Iowa and farmers have had to bear the increased cost. (Savings result from handling very high volumes of grain. If the grain volume must be shared by several facilities, the savings are reduced while the costs increase.) All 151 of Iowa's subterminals are located in 51 of the State's 99 counties, as shown in the following table.

Number of subterminals in a county	Number of counties with that number of subterminals	Total number of subterminals
1	11	11
2	16	32
3	6	18
4	8	32
5	7	35
7	2	14
9	1	9
Total	51	151

1/The Omaha Bank for Cooperatives, part of the Farm Credit Administration, an independent Federal agency, serves Iowa. It provides credit for marketing, supply, and business service cooperatives that have headquarters in its district.

The number of subterminals in this area indicates a potential for overdevelopment. For example, an elevator with the capacity to efficiently load 12 unit trains per year, but which has to share a market area with up to eight other subterminals may not be able to get enough grain to load to full capacity. Overdevelopment will limit the efficient use of subterminals' capacity to handle grain and could cause some subterminals to go bankrupt.

Although subterminals ultimately benefit farmers, they can initially have high costs which cause the farmer to receive less for his or her grain. By expanding its facilities, a subterminal increases its expenses. These increased expenses, to the extent they cannot be offset by transportation cost savings or higher volumes, are passed on to the farmer through lower grain prices or increased storage costs. For example, in 1977 one elevator built a new facility, and over the 3-year period 1977-79 it increased its expenses, including interest (up 268 percent), depreciation (up 99 percent), utilities (up 89 percent), and insurance (up 69 percent). To counter these increased costs, the elevator increased its margins (which is taken off the price paid to the farmer) and raised storage costs. However, in later years, when expenses (particularly interest expense) decline, and the operations described above improve, the elevator should be in a position to pass increased savings on to the farmer in the form of higher prices and lower storage costs.

Subterminals operate most successfully when the unit train moves from the loading subterminal directly to its destination, such as a port elevator; unloads; and returns as a complete unit to the loading subterminal. Some port elevators, however, do not have adequate track and unloading facilities to keep the unit trains together. As a result, many unit trains are broken up and cars are returned piecemeal, reducing the potential benefits from the system and not providing the full incentives to subterminal development. Additionally, offering multiple-car rates may compound problems at ports that cannot easily handle additional railcars. For example, 4 days after multiple-car rates went into effect for Pacific Northwest destinations from Iowa and Nebraska, more than 1,400 grain cars were in several Portland elevators at the same time that five additional unit trains were enroute to these elevators. The elevators were unable to accept these additional railcars, thereby discounting the efficient use of unit trains. Although one railroad official told us that these elevators may not have been able to accept additional railcars regardless of whether multiple-car rates had been instituted, this example illustrates how port elevator problems can ultimately affect subterminal efficiency.

FEDERAL EFFORTS TO ASSIST SUBTERMINAL DEVELOPMENT

Even though funding is available under various Federal programs for subterminals, in 1980 the Congress enacted legislation directed specifically at subterminal development. This legislation, the Agricultural Subterminal Storage Act of 1980 (Public Law 96-358), directs the Secretary of Agriculture to make planning grants for developing State and regional subterminal facilities plans. It authorizes $3.3 million annually for fiscal years 1981-83, although no money had been appropriated as of March 27, 1981. It also allows the Secretary to insure subterminal construction loans if applicants are unable to obtain commercial loans on reasonable terms and conditions. The Congress passed this act with the belief that subterminals can facilitate efficient grain movement if they are carefully planned. As of March 27, 1981, USDA had not implemented the act.

There are several existing programs that make funds available for subterminal feasibility studies and construction. The primary purpose of these programs is not subterminal development, but they can provide some funding for such development. The Federal Railroad Administration, Department of Transportation; the Farmers Home Administration and the Agricultural Marketing Service, Department of Agriculture; the Farm Credit Administration; the Small Business Administration; and the Federal Regional Commissions associated with the Department of Commerce all have such programs. Combined, they had fiscal year 1980 funds of more than $2 billion available for several purposes, one of which was subterminal development. The table on page 9 provides funding information. Some of these programs may be eliminated or curtailed under administration proposals to reduce the budget.

Programs that could provide funds for subterminal development have not been well coordinated or publicized

Though Federal programs existing before the 1980 act was passed could provide some funding for subterminals, this is not their main purpose and there has been no well-publicized focal point for subterminal development within the Federal Government. As a result, these Federal programs have been used very little for subterminal projects.

In interviews we conducted before the 1980 act was passed, State officials, elevator operators, and other grain trade officials indicated a general lack of knowledge about available Federal programs that could provide funds for subterminal feasibility studies and construction. One official, who is the Federal Railroad Administrator contact point in his State, stated that he was not even aware that the Administration's program could be used for subterminal development.

In testimony at the Senate hearings on the proposed Agricultural Subterminal Facilities Act, a USDA official confirmed that available rail planning money had not been considered for subterminal planning until the act was introduced.

Two independent elevator operators that we contacted stated that they did not know of any Federal program designed to provide financing for subterminal development. One grain association official summarized the situation by stating "the administration lacks direction and aggressive implementation of legislation at their disposal."

With several Federal agencies having programs that could make funding available for subterminal development, the potential exists for duplicating program coverage. A USDA official testified at the hearings on the proposed subterminal act that the act would provide some duplication of existing authority. The table on page 9 shows the various Federal agencies' and the Banks for Cooperatives' programs that provide for subterminal development and which could be duplicative.

We believe that when the provisions of the subterminal act are implemented, an opportunity would exist to coordinate existing programs, prevent duplication, and designate a focal point for subterminal development.

RECOMMENDATION TO THE SECRETARY OF AGRICULTURE

Given the variety of Federal agencies having funds that can be used for subterminal development, including several within USDA, and the lack of knowledge about these programs in the agricultural community, we recommend that the Secretary of Agriculture establish in USDA a focal point to oversee Federal subterminal planning and construction activities. Potential borrowers/grantees can then contact such a focal for obtaining USDA subterminal planning, construction, and improvement funds as well as learn the sources of all other Federal programs that can provide funding for subterminal development. This focal point should be publicized by contacting State departments of transportation and agriculture officials, land grant university officials and researchers, State grain and feed dealers associations, and other agricultural associations.

USDA's Office of Transportation generally agrees with this recommendation, however, USDA does not intend to designate a focal point until funds have been appropriated for the new legislation for subterminal facilities.

OBJECTIVES, SCOPE, AND METHODOLOGY

We reviewed selected activities on the development of subterminal grain storage facilities. Our review was concentrated

Federal Agencies Providing Subterminal Funds

Agency	Funding (note a)	Feasibility study (note b)	Pilot project (note b)	Construction (note b)	Limitations	Comments
Banks for Cooperatives	c/	Loan		Loan	Only cooperatives are eligible to borrow funds.	
Small Business Administration	$947.7 million	-	-	Loan	Funds must not otherwise be available on reasonable terms. Business must be independently owned and operated and is not dominant in its field. Agricultural enterprises' gross annual sales cannot exceed $1,000,000. Loan proceeds can not be used to pay off a loan to an uninsured creditor who is in a position to sustain a loss.	One of the program's limitations is that gross annual sales can not be over $1,000,000. This would exclude most subterminals.
Federal Railroad Administration	$90.5 million	Grant	-	Grant	Only States are eligible to receive funds and they must have an approved State railroad plan on file with FRA. Subterminal funds must be included in the State rail plan. Individuals then apply for the funds through the State.	FRA has not received one request for a grant for any subterminal-related project.
Farmers Home Administration	$1.1 billion	Loan	-	Loan	Applicants cannot live in cities of 50,000 or more or in their adjacent urban or urbanizing areas.	
Agricutural Marketing Service	d/ $1.6 million	-	Grant	-	Only State departments of agriculture or other appropriate State agencies may apply for funds.	AMS has not requested project funds since 1975 nor has it been able to spend its allocations.
Federal Regional Commissions	e/ $139.7 million	-	Grant	-	Regional Commissions do not normally fund two similar types of projects within their regions.	These grants are for pilot projects only.

a/Funding figures are fiscal year 1980 estimated obligations except as noted.

b/The words loan or grant under column headings indicate the nature of the funding and the purposes for which it may be used. These funds are available for many purposes, one of which is subterminals; however, subterminal development is not their main purpose.

c/The banks obtain the bulk of their loan funds through the sale of consolidated bonds to investors. All the banks work together to provide a complete loan service to cooperatives. The Central Bank for Cooperatives participates with the district banks on larger loans.

d/No funds were requested for fiscal year 1981.

e/Initially there was only one regional commission; subsequently, eight other commissions were established. The initial commission received $78.6 million of the total; the remaining eight commissions received an average of $7.6 million each.

in Iowa, Kansas, Montana, and South Dakota because of the significance of grain production, availability of information, and potential for subterminal development and improvement in these States. However, we did review subterminal development in other States.

Our objective was to obtain an understanding of subterminal development benefits, obstacles, and potential. We contacted a number of organizations, including grain elevators, Federal and State agencies, and land grant universities. We reviewed pertinent legislation, program directives, studies, and other documents relating to subterminal development. The information gathered has been synthesized in this report.

We contacted the headquarters of the Farmers Home Administration, the Office of Transportation, and the Agricultural Marketing Service within USDA; the Federal Railroad Administration within the Department of Transportation; the Small Business Administration; and Federal regional commissions associated with the Department of Commerce. We visited the headquarters of the Farm Credit Administration, an independent Federal agency, and the eighth (Omaha, Nebraska) farm credit district and contacted the ninth (Wichita, Kansas) farm credit district. In addition, we visited five land grant universities; State departments of transportation and agriculture in Kansas, Iowa, and Montana; grain and grain dealers associations; headquarters and divisional or area offices of four railroads that operate in the Midwest; and 23 cooperative and independent grain elevator operators.

We obtained the services of Dr. C. Phillip Baumel, Department of Economics, Iowa State University, a recognized expert in the development of subterminals, to assist us in this review. Dr. Baumel provided information on the benefits of subterminals and on the number and location of subterminal facilities and the historical development of subterminals.

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As arranged with your office, we are sending copies of this report to the Secretary of Agriculture and the Office of Management and Budget. Unless you publicly announce its contents earlier, no further distribution of this report will be made until 10 days from the date of the report.

Sincerely yours,

Henry Eschwege

Henry Eschwege
Director