

SOUND TRANSIT

MOTION NO. M98-74

Research and Technology Fund BACKGROUND AND COMMENTS

Meeting:	Date:	Type of Action:	Staff Contact:	Phone:
Executive Committee	9-18-98	Discussion	Agnes Govern, Director,	684-1673
Executive Committee	10-2-98	Discussion/Recommend	Regional Express	
		Board Approval	Barbara Gilliland, Program	684-1630
Board of Directors	10-22-98	Approval	Manager, Systems Integration	
			Barry Hennelly, Project	689-4925
			Coordinator, Systems Integration	

ACTION:

Approval of the mission, goals, policy guidelines, and three program focus areas of the Research and Technology Fund.

BACKGROUND:

The Research and Technology Fund was included in the plan to provide the Board the flexibility to address issues related to new or emerging technology over the course of the 10 year plan that were not central to the core mission of the agency – the delivery of the public transportation services and facilities identified in *Sound Move*. During the development of the Plan individuals and groups encouraged the Board to implement transit technologies such as personal rapid transit (PRT) or magnetic levitation propulsion which have not been implemented on a large scale in revenue operation. Others recommended investments in technological innovation such as computer based systems that would increase the effectiveness and efficiency of conventional transit services. These systems are typically included under the title of ITS – Intelligent Transportation Systems. Finally others suggested that refining existing transit technologies such as alternative fuels, and low floor vehicles offered a benefit that might not be achieved if Sound Transit adopted an “off the shelf” only perspective.

In adopting *Sound Move*, the Board struck a balance between these competing interests. The core mission of the agency would be protected by making firm commitments that the public could rely on regarding the use of proven technologies to deliver the service committed to in *Sound Move*. The Board included \$30 million in a Research and Technology fund which would be used to explore new technologies that could be, where practical, incorporated into the implementation of existing services or to provide the Board with information which could be used in developing future phases of Sound Transit. Through this fund Sound Transit will “evaluate...innovative ways to provide transit service, reduce dependency on single occupancy vehicles, improve public transportation’s cost effectiveness, and better respond to customer needs” (*Sound Move*).

The fund will provide Sound Transit the ability to assess and operationally test “technological innovations (alternative fuels and propulsion systems, quieter equipment, lighter equipment, lighter vehicles, energy efficient engines), ways to improve passenger comfort and ways to reduce impacts on the environment” (*Sound Move*).

RELEVANT BOARD POLICIES AND PREVIOUS ACTIONS TAKEN:

- ◆ Adoption of *Sound Move*, The Ten-Year Regional Transit System Plan (May 31, 1996). *Sound Move* calls for a fund to be established that considers technologies and services that would aid in keeping Sound Transit’s equipment and services up to date.
- ◆ Resolutions 98-16 and 98-34, the Board approval of Regional Express bus purchases from New Flyer Corporation and Gillig Corporation. Significant discussion took place during these approvals regarding the inclusion of alternative fuel transit vehicles into Sound Transit’s current and future fleet plans. The Board indicated that future transit vehicle acquisitions and specifically transit bus acquisitions would more fully consider the use of alternative fuels/hybrid powertrain technologies.
- ◆ Adoption of Fiscal Year 1998 Budget (December 11, 1997)
The 1998 budget includes \$500,000 for the Research and Technology Fund. *Sound Move* allocated \$30 million over the ten-year implementation period to the Research and Technology Fund.

KEY FEATURES:

Mission Statement

The Research and Technology Fund will be used to evaluate new ideas, services, and technological innovations that improve the comfort, convenience, and reliability of the transit ridership experience, while reducing operating expenses, environmental impacts, and reliance on single-occupancy vehicles.

Goals

To investigate and assess emerging technologies and services that will promote:

- Enhanced rider comfort levels.
- Improved rider convenience.
- Enhanced transit service reliability and predictability.
- Improved operating efficiencies.
- Reduced emissions levels of harmful pollutants.
- Reduced reliance on the automobile as the primary mode of transportation.
- The “Smooth Ride” seamless transit trip concept.
- The greatest possible Sound Transit service area-wide equity.

Policy Guidelines

Sound Transit is interested in considering transit innovations that will measurably improve its efficiency, lower its environmental impact, increase the speed and/or reliability of its transit vehicles, and/or improve passenger safety, comfort, and convenience. Sound Transit intends to structure its Research and Technology Fund (RTF) investments accordingly. Technologies will be chosen that complement our primary mission of moving transit passengers efficiently, quickly, reliably, safely, and in comfort.

Technology-based efforts will be assessed on their ability to offer a demonstrable return on investment, and to fully integrate into our regional partners' existing and planned technological infrastructure investments. Demonstrable returns on investment can be defined as those expenditures which will quantifiably increase customer convenience or comfort, increase vehicle productivity or operating efficiency, increase fleet productivity or operating efficiency, or improve safety and/or reduce liability.

Sound Transit will, as staff resources and RTF budget allow, provide a forum for technologies that offer the possibility of improving regional transit services. These efforts may include facilitation of discussions related to regional transit technical issues, or sponsoring special expert technical teams to research advanced transit technologies for all transit agencies within the Sound Transit service area.

Sound Transit will consider assessing the latest innovative, field-proven technologies that offer verifiable returns on investment. Part of this strategy will include manufacturer product demonstrations. These demonstrations will be at the manufacturer's own risk, and will not constitute an expressed nor implied offer to buy or repair any of that manufacturer's products by Sound Transit. Sound Transit may, solely at its own discretion, chose to enter into agreements to participate in product demonstrations either financially or through staff or equipment sharing.

Sound Transit will apply the demonstrable return criteria to technologies considered in this forum. In addition, records will be kept that allow for a detailed cost/benefit analysis to be carried out, to include a life cycle cost analysis, capital costs, and exceptional costs, on each type of equipment tested. Subjective (risk assessment) criteria may also be developed and used in evaluating any given technology.

Sound Transit will not enter into agreements that force it to be the research and development test bed of any manufacturer's emerging technology. Preference will be given to technologies that address a defined regional transit need and that have been tested or are available for testing in revenue service.

Partnering opportunities will be sought to take advantage of existing transit technology programs. These partnerships would involve various Federal, state, and local agencies.

Program Focus Areas

Three primary focus areas are envisioned; they include:

- Intelligent Transportation Systems (ITS)
- Advanced Transit Vehicle Powertrains (ATVP)
- Alternative Transit Technologies (ATT)

Intelligent Transportation Systems (ITS)

The ITS focus area would allow Sound Transit to provide a region-wide transit oriented ITS forum. These discussions would concentrate on the formation of a coordinated regional ITS system that would allow the linking of transit dispatch centers, GIS mapping resources, and automated vehicle locator (AVL) systems required to create a region-wide traveler information systems, a key element of a “seamless” transit patron’s trip. Sound Transit and PSRC, acting jointly, have already communicated this possibility to all of the transit agencies within the Sound Transit service area (and Kitsap and Intercity Transit), and it has been well received. Federal ITS infrastructure compatibility requirements, called for in TEA-21, will eventually require this level of cooperation, so these efforts are principally proactive.

Sound Transit must also create an agency ITS strategy that is compatible with the regional ITS strategy. The ITS focus area would also create, coordinate, and integrate Sound Transit’s long term, internal ITS effort. The Fund will allow Sound Transit to test and evaluate the sub-components that make up its ITS system in a controlled environment before any large scale implementation can take place.

Advanced Transit Vehicle Powertrains (ATVP)

The ATVP is an effort to develop, refine, and advance those transit vehicle technologies that Sound Transit is employing in its current operations. These vehicle types are limited to transit bus, commuter rail, and light rail operations. The concept behind the ATVP effort is to investigate, evaluate, and field test alternative fuel/hybrid powertrain propulsion systems.

The initial ATVP effort will focus on transit buses, as they will continue to be the largest element of the transit fleet throughout the Sound Transit service area in the foreseeable future. This effort also reflects a request by the Board to consider this specific issue. The goal of this initial effort is to develop a regional specification for a hybrid /alternative fuel powertrain transit bus. Several additional sources of funding are available to leverage any Sound Transit funds used to examine advanced hybrid transit bus technologies.

Alternative Transit Technologies (ATT)

The ATT portion of the fund is intended to consider transit technologies and services Sound Transit’s three lines of business do not currently address. The ATT effort could operate largely as a grant program, with applicants describing how they would address several broad criteria. Applicants to the ATT portion of the fund could be asked to describe and quantify the regional benefit to the Sound Transit service area as a whole. The ATT portion of the Research and

Technology Fund, while not a reliable resource for construction or operating funds, could be used as a source of local matching funds for federal grants for these purposes. In addition, funds from this account could be used to perform feasibility studies to assess the likelihood of successfully implementing a given alternative transit technology.

Staff will return to the Board for discussion and approval of a specific process and criteria to use in implementing the ATT portion of the fund.

Research and Technology Funding

The primary use of funds from the Research and Technology Fund will be to enhance and improve the existing technologies that are already in use in the region. These funds will be distributed over the remaining eight years of implementation, beginning in 1999 at \$1.3 million and then equally for the remaining years at approximately \$5 million/year (\$ YOE).

Approximately 80% of the funds will be used for projects that enhance the current transit system and/or increase overall system ridership. This includes not only Sound Transit services but those of other operational transit providers as well. The remaining funds will be available as a matching grant program for the development of potentially new systems.

Legal Review

The Legal Department has reviewed the motion and finds it legally acceptable.

SOUND TRANSIT

MOTION NO. M98-74

A motion of the Board of the Central Puget Sound Regional Transit Authority adopting the basic program elements of the Research and Technology Program.

Background:

The Research and Technology Fund was included in *Sound Move* to provide the Board the flexibility to address issues related to new or emerging technology over the course of the ten-year plan that were not central to the core mission of the agency. The Board included \$30 million (\$1995) in a Research and Technology Fund which would be used to explore new technology that could be, where practical, incorporated into the implementation of existing services or to provide the Board with information which could be used in developing future phases of *Sound Move*.

Sound Move specifically states that the funds would be used to: “evaluate... innovative ways to provide transit service, reduce dependency on single occupancy vehicles, improve public transportation’s cost effectiveness and better respond to customer needs.” It also states that the funds would be used to assess and operationally test, “technological innovations (alternative fuels and propulsion systems, quieter equipment, lighter equipment and vehicles, energy efficient engines), ways to improve passenger comfort and ways to reduce impacts on the environment.”

Motion:

It is hereby moved by the Board of the Central Puget Sound Regional Transit Authority that the Research and Technology Fund (RTF) be established consistent with the following elements:

Mission

The Research and Technology Fund will be used to evaluate new ideas, services, and technological innovations that improve the comfort, convenience, and reliability of the transit ridership experience, while reducing operating expenses, environmental impacts, and reliance on single-occupancy vehicles.

Goals

To investigate and assess emerging technologies and services that will promote:

- Enhanced rider comfort levels.
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- Enhanced transit service reliability and predictability.
- Improved operating efficiencies.
- Reduced emissions levels of harmful pollutants.
- Reduced reliance on the automobile as the primary mode of transportation.
- The “Smooth Ride” seamless transit trip concept.

- The greatest possible Sound Transit service area-wide equity.

General RTF Framework

The RTF framework addresses the primary RTF mission and goals as they relate to internal Sound Transit needs, and both short- and long-term regional transit needs. Three primary focus areas envisioned include:

- Intelligent Transportation Systems (ITS)
- Advanced Transit Vehicle Powertrains (ATVP)
- Alternative Transit Technologies (ATT)

Research and Technology Funding

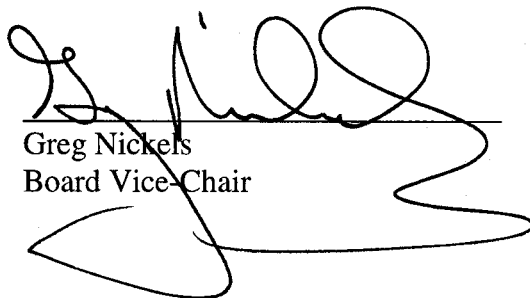
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Approximately 80% of the funds will be used for projects that enhance the current transit system and/or increase overall system ridership. This includes not only Sound Transit services but those of other operational transit providers as well. The remaining funds will be available for the development of Alternative Transit Technologies as a grant program for the development of potentially new systems. The criteria and process for distributing ATT funds will be the subject of later Board action

Approved by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof on the 22 day of October, 1998.

ATTEST:

Marcia Walker
Marcia Walker
Board Administrator


Greg Nickels
Board Vice-Chair