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Development of Bay Area Rapid Transit System Expansion Criteria and Process

Elizabeth Deakin, Marianne Payne, and Val Menotti

In 1999, the San Francisco Bay Area Rapid Transit (BART) District Board, in California, adopted a policy creating a framework for BART system expansion that placed new emphasis on cost-effectiveness, ridership generation, multimodal access, transit-oriented development, local partnerships, and the use of appropriate transit technologies. The board directed staff to develop criteria and a detailed process for implementing these goals. The resulting expansion planning process and criteria for the BART system, adopted by the BART board in December 2002, are described along with the method used to develop the criteria and process. Some of the implementation issues that have arisen are assessed. The process uses a strategic opportunities assessment as an initial sketch-planning evaluation tool and then applies criteria and a rating system to evaluate preliminary proposals as well as project alternatives that proceed to environmental review and beyond. The rating system also indicates to local jurisdictions the kinds of access and land development that would support a BART investment. As part of the process, localities are encouraged to prepare a ridership development plan that puts in place transit-supportive plans, zoning, infrastructure, and services. Extensive consultation with the board and other stakeholders helped build understanding of the issues and solid board support for the new planning process and criteria. Application of the new process has led to transit-supportive plans and zoning changes in several local jurisdictions. Some jurisdictions are not prepared to make the land use changes needed for a "high" project rating and are considering lower-cost transit alternatives.

In December 1999, the San Francisco Bay Area Rapid Transit (BART) District Board, in California, adopted a policy that created a framework for BART system expansion (1). The policy established seven goals to be met by new service expansion projects:

- Enhance regional mobility, especially access to jobs;
- Generate new ridership on a cost-effective basis;
- Demonstrate a commitment to transit-supportive growth and development;
- Enhance multimodal access to the BART system;
- Develop projects in partnership with communities that will be served;
- Implement and operate technology-appropriate service; and
- Ensure that all projects address the needs of the district's residents.

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The board directed staff to partner with other transportation agencies, local governments, and the private sector to develop criteria and a detailed process for implementing these goals. The authors served as the study team to respond to this board directive. In this paper, the expansion planning process and criteria for the BART system, which were adopted by the BART board in December 2002 (2), are described along with the method used to develop the criteria and process. In addition, some of the implementation issues that have arisen are assessed.

BACKGROUND

BART was created by a vote of the people of Alameda, Contra Costa, and San Francisco Counties more than 40 years ago, and the new heavy rail system began operating in the 1970s. From the beginning, there was interest in expanding BART to other locations, possibly circling the bay with rail services and extending new services to the region's rapidly growing suburbs. The 34 stations in the original system are now referred to as the core system, as a new line with two stations has been built to the east, the Concord line has been extended two stations, and—facilitated by San Mateo County's buy-in into the district—two lines have been extended down the San Francisco Peninsula, recently reaching the San Francisco International Airport (owned by the city and county of San Francisco but located in San Mateo County to the south). Today BART provides service to 43 stations, carrying nearly 300,000 riders a day (down from more than 330,000 before the recession). In addition, though a partnership between BART and the Santa Clara County Valley, a BART extension south from Fremont to downtown San Jose is currently in the environmental review stages, and studies are evaluating possible further extensions to the suburbs in the east and northeast portions of Alameda and Contra Costa Counties (Figure 1).

Continuing growth in the Bay Area, combined with the lack of nearby BART service in some communities that pay taxes to the BART District, has created pressures for more system expansions. But other important projects compete for transportation funding. BART itself requires a substantial, continuing level of reinvestment to maintain service and improve seismic safety. Other Bay Area transit services, including San Francisco Muni, AC Transit, VTA, the Contra Costa County Connection, and several smaller operators, provide important services in areas that overlap with the BART District and also require funding. Although each of the BART counties has adopted a special sales tax earmarked for transportation, the revenues cover street, highway, pedestrian, and bicycle projects as well as bus operations and possible BART improvements. In this highly competitive fiscal environment, BART is working to ensure that its investments are cost-effective and protective of the long-term taxpayer investment in the system.



FIGURE 1 BART system map.

BART riders cover about 57% of operating costs, so strong ridership is a critical element of system finances. Ridership on BART varies considerably among stations (Table 1). About 20% of the stations (in downtown San Francisco, Oakland, and Berkeley) attract 10,000 or more riders a day, and the Powell and Embarcadero stations in San Francisco have daily exit counts of about 25,000 and 35,000, respectively. Another 40% of the stations attract 4,000–10,000 riders a day. The remaining 40% of the stations attract fewer than 5,000 riders per day, and five stations each account for fewer than 3,500 exits daily.

Table 2 shows that more than one-half of BART riders arrive at the station by car—drive alone, drop-off, or carpool. However, walking and transit are the primary modes of access at the most heavily used stations: only 1 of the top 10 stations (El Cerrito del Norte) has any BART parking. Many of the stations with low ridership are park-and-ride stations in low-density areas, where few people arrive on foot or by transit. At some of the park-and-ride stations, parking is now constrained. In addition, some of the stations with low ridership were built in freeway medians or along former freight rail lines—conditions that work against walk access and in many instances make infill development difficult.

BART's strategic plan (3), adopted in 1999, recognized that an important way to manage costs for the BART system is to build ridership at existing stations and ensure that new extensions carry adequate numbers of passengers. Reviewing ridership and access issues, the plan also recognized that to be cost-effective, BART's specialized heavy rail technology requires high levels of ridership and that

- Other technologies might better serve low-ridership areas;
- Providing parking is costly, whether in structures or in lots;

- Stations with a concentration of employment, housing, or a mix generate substantial ridership, with many riders arriving on foot; and
- Partnerships with local governments and other agencies would be necessary to plan and finance future BART improvements.

The *BART Policy Framework for System Expansion* adopted in December 1999 (1) further emphasized the generation of new ridership on a cost-effective basis, use of appropriate technologies to provide service, commitment to transit-supportive growth and development, multimodal access to the BART system, and project development in partnership with the communities to be served. Determining how to implement these concepts was the objective of the work presented here.

METHODOLOGY

The planning effort was designed to

- Flesh out and implement board policy aimed at ensuring that BART system expansions are cost-effective and fiscally sound while serving important social, economic, and environmental objectives;
- Integrate the policy into BART planning and analysis practices;
- Advise local governments and other interested parties about policies that support BART use and the criteria that BART staff would use to evaluate projects; and
- Build consensus for the policy implementation.

Several methods were used to accomplish these objectives, including a survey of practices among other transit operators, interviews

TABLE 1 BART Ridership and Parking Supply by Station

Station	Parking Spaces	Passenger Exits
Richmond	789	3,387
El Cerrito del Norte	2,247	7,760
El Cerrito Plaza	791	3,858
North Berkeley	806	3,552
Berkeley	0	11,336
Ashby	570	3,938
MacArthur	608	6,236
19th Oakland	0	7,771
12th Oakland	0	12,173
Lake Merritt	211	5,145
Fruitvale	1,070	6,440
Coliseum	1,026	8,505
San Leandro	1,234	4,979
Bay Fair	1,639	4,914
Hayward	1,465	4,519
South Hayward	1,314	2,886
Union City	1,196	3,855
Fremont	2,197	6,074
Concord	2,513	5,375
Pleasant Hill	3,450	6,248
Walnut Creek	1,966	5,642
Lafayette	1,521	3,094
Orinda	1,385	2,622
Rockridge	886	4,701
West Oakland	419	4,256
Embarcadero	0	28,746
Montgomery St.	0	30,292
Powell St.	0	22,424
Civic Center	0	19,360
16th St. Mission	0	9,039
24th St. Mission	0	11,335
Glen Park	54	6,646
Balboa Park	0	12,734
Daly City	2,076	8,067
Colma	2,491	4,005
Castro Valley	1,123	2,177
Dublin/Pleasanton	2,612	6,412
North Concord	1,975	1,656
Pittsburg/Bay Point	2,032	4,820
South San Francisco	1,384	1,790
San Bruno	1,003	1,409
San Francisco International Airport	N/A	2,903
Millbrae	3,000	2,710
Totals	47,053	315,791

with transit experts in federal agencies and universities, and a series of meetings and presentations with BART board members, BART staff, local officials, and other stakeholders.

At the outset of the project, the authors conducted a structured survey of transit agency staff and a series of interviews with agency executives and other local leaders in other regions that had recently undertaken a major transit investment project (4). The purposes of

TABLE 2 BART Morning Peak Access Modes

Access Mode	Percentage of Ridership (2003 est.)
Drive alone	37%
Walk	23.5%
Transit	21%
Drop-off	11%
Carpool	5%
Bicycle	2%
Taxi	0.5%
Total	100%

the survey and interviews were to identify the methods and procedures being used to evaluate and select projects and, in particular, to document how land use considerations are being incorporated into project decisions. Staff members responsible for 41 projects were contacted, and 28 completed the survey, representing projects in 23 regions of the United States. Supplementary interviews were conducted for 10 regions.

Simultaneously, BART planning and analysis practices were reviewed, and ways to build in the new board policies were determined. Through a series of meetings with BART staff in various departments, the authors developed a better sense of the data and analyses that would be needed to effectively carry out the new extension policy and a better sense of current system performance issues that staff saw as needing attention. This effort led to a series of additional planning projects, including the development of access plans and targets for the various stations (5) and the creation of transit-oriented development guidelines (6).

Periodic briefings of the BART board and meetings with individual board members provided the opportunity to discuss issues in detail and to hear board members' suggestions and concerns as the criteria and planning process were being developed. These discussions also made it possible for board members to follow up with their constituents and communicate their suggestions and concerns back to staff. The staff briefings and the board members' outreach efforts were important in building support and acceptance for the process and criteria that ultimately were adopted.

Finally, discussions with other stakeholders in the region—local governments, the metropolitan planning organization, transportation sales tax agencies, other transit operators, and community interest groups—provided opportunities to explore the acceptability of the proposed process and criteria, identified possible pitfalls, and helped build a better understanding of the need for action.

Survey Findings

The survey of transit operator policy has been published previously by Deakin et al. (4) and so is only summarized here. Most agencies use federal guidance and regulations on the evaluation of transit investment as a starting point but give equal weight in project design and selection to state and local policy objectives such as social equity, economic development, and "fair share" distribution of projects among local communities. Several transit agencies give priority to projects in jurisdictions with transit-supportive patterns or plans for land use. The availability of public or private funding contributions is increasingly important in prioritizing projects. Increasingly, tran-

sit agencies are hiring staff to work with local governments on land use planning and funding partnerships and are working with them to develop a shared understanding of the area's transit needs and related development objectives. Staff and political leaders deem these latter efforts as important as technical evaluations of cost-effectiveness.

On the basis of these findings, BART staff decided to build on FTA New Start guidance (7) in developing their planning process and criteria for system expansion but to add local concerns and emphasize the topics raised by BART board policy.

Integrating New Policies into BART Planning and Analysis Practices

The next step was to review BART planning and analysis practices to determine how to best incorporate the system expansion policy. BART has a long history of partnerships with other transit agencies, local communities, and private entities to plan and implement service expansion. As only one of several transit operators in the areas it serves, BART has always depended on other transit agencies to provide much of the feeder service to its stations. BART also has depended from the start on voter-approved taxes and more recently has received support from voter-approved county sales taxes. But desires for new services exceed current and proposed tax revenues, so partnerships have increasingly been extended to such matters as pedestrian and bike access improvements, joint-use parking, and station area development. With the new board system expansion policy, these partnerships and more would be needed.

Over the years, BART has developed several important planning programs to improve BART access and station areas and to evaluate proposals for new expansions. One important program is an initial sketch-planning step that the staff calls a strategic opportunity assessment. In a strategic opportunity assessment, BART staff members investigate new BART options in a proposed corridor by evaluating current and anticipated demand for transit services, possible station locations, approximate expansion costs, effects on the existing system, access needs, and community support. They also consider other transit options (i.e., commuter rail, light rail, and

quality bus) as alternative or interim service. The level of detail for the assessment depends on available resources, prior planning and analysis work done in the area, cost sharing with local government, and so on. For example, data from a local general plan update and rezoning might be combined with sketch-planning demand analysis at this stage. Staff members use the strategic opportunity assessment study reports in deciding whether to recommend that the board advance the project for additional detailed study.

BART also has developed programs for station area planning in cooperation with local government and has undertaken joint development with public and private landowners and developers. In addition, BART has worked with government and community members to develop plans for access and station area improvement. These planning programs are designed to help build markets for transit and increase ridership. Grants from state and regional agencies are sometimes sought to supplement local funding and BART contributions to these planning efforts.

Together, local partnerships, strategic opportunity assessments, station area plans, and access plans have created a framework to support the implementation of the new system expansion policy. By combining these planning efforts in a more formal structure, backed up with criteria for key evaluation steps, a new process for developing BART expansion plans was developed (Figure 2). Staff members conduct the strategic opportunity assessment as the initial step and advise the board as to whether the project has sufficient potential to advance. If the board chooses to put the project forward, staff members undertake the detailed studies (alternatives analyses) needed for project environmental review and simultaneously partner with local governments on a station- and corridor-level ridership development plan.

The ridership development plan incorporates the planning for station functionality, station access, and, where needed, station area development. The latter element would be carried out by local government and would cover the area within approximately 0.5 mile of the station. Its purpose is to ensure that the plans, market studies, zoning, infrastructure, and other elements needed to provide adequate ridership will be in place if BART is expanded to serve the area. Many local jurisdictions are interested in having BART service but do not have the land uses and access modes to generate suf-

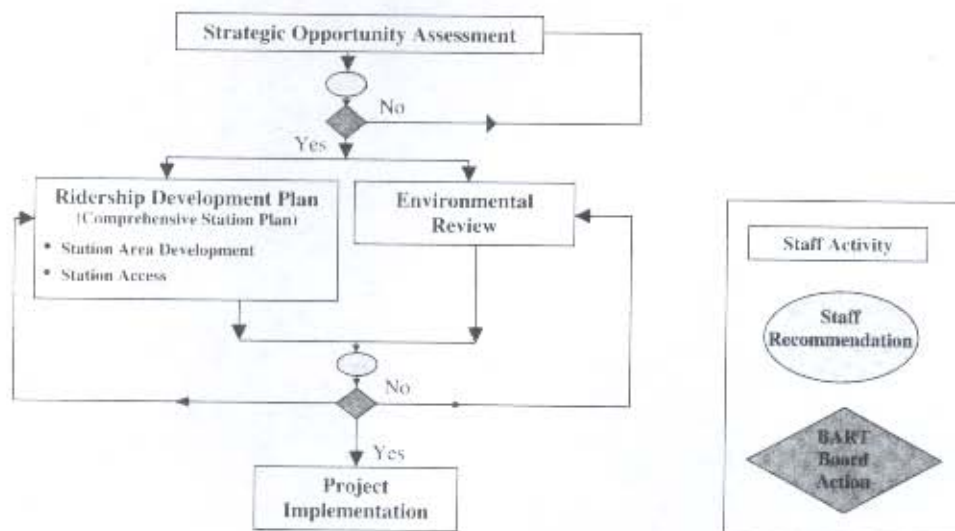


FIGURE 2 BART project advancement process.

efficient ridership; the station area development plan would represent a local commitment to develop in a way that would justify a BART investment. BART would encourage commitments from local jurisdictions to develop these plans, but because BART does not have off-site planning or zoning authority, it would be up to the local jurisdictions to decide whether to proceed with a development plan. If a locality chooses to do so, BART will work with the locality to develop a memorandum of understanding that lays out coordinated timelines for transit project development (including environmental documentation) and the ridership development plan process.

Local government commitment to a development plan would allow the resulting anticipated development to be considered as "reasonably foreseeable" background conditions and thus to be included in the analysis of project performance and in the environmental review. Staff would use both the ridership development plan and the environmental review [California Environmental Quality Act (CEQA) documentation and, in some cases, National Environmental Policy Act documents] to decide whether to recommend a project to the board, and both documents would be presented to the board for their consideration.

Project Advancement Criteria

BART's new process for system expansion depends on having clear and widely understood criteria for project advancement. The strategic plan and system expansion policy provided the initial criteria; all new expansion projects should

- Be cost-effective;
- Have adequate bus, bicycle, and pedestrian access as well as transit feeder service;
- Maximize ridership by supporting smart, efficient, and desirable growth patterns;
- Be integrated with other services and facilities in an intermodal regional network; and
- Be accommodated without adversely affecting existing system capacity, quality, or financial health.

A major portion of this study was directed toward the development of more detailed metrics and indicators for each of these criteria. A combination of quantitative and qualitative measures was chosen, and different levels of performance were categorized as low, low-medium, medium, medium-high, and high. For a project to be recommended for development through environmental review, staff would look for an overall rating of at least medium during the strategic opportunity assessment. They would then use the criteria both to help develop and to evaluate the alternatives put forth in the environmental review.

The fleshed-out criteria, presented in the following subsections, serve a second purpose in addition to their direct use by staff in project evaluation and development (Table 3). They allow local governments, other transportation agencies, and the broader public know what BART is looking for in a project. They provide an indication of desired ridership levels and the kinds of land uses and access that likely would generate such ridership. The latter information would be helpful to localities that choose to pursue a development plan for the land uses, densities, and accessibility that would justify BART service. Alternatively, BART could propose a less costly technology to provide service to an area that is not ready for BART or does not want to pursue development patterns that could

TABLE 3 Evaluation Criteria

Cost-Effectiveness
Cost per New Rider: Base Case
Cost per New Rider: with Transit-Oriented Development
Cost per User Benefit
Transit Supportive Land Use and Access
Existing Land Use: Residential and/or Employment
Existing Intermodal Connections
Land Use Plans and Policies
Regional Connectivity
Regional Transportation Gap Closure
System and Financial Capacity
Core System Improvements
Capital Finance Plan
Operating Finance Plan
Partnerships
Community and Stakeholder Support
Ridership Development Plan
Ridership Threshold
Station Context

support BART service. Example technologies include conventional rail cars operating on existing track, light rail transit, and bus rapid transit. In some cases, a lower-cost technology might be considered as an interim step to help build ridership in a corridor, with high-capacity rail transit to be implemented if sufficient ridership can be developed.

Cost-Effectiveness

Several straightforward measures of cost-effectiveness were selected: cost per rider, cost per new rider, and the overall measure of transportation system user benefits promulgated by the FTA (7). Because the FTA metric requires modeling changes in travel time for all travelers, including highway users, the simpler cost and ridership measures will be used in the earlier, sketch-planning stages of the evaluations.

Ridership

Ridership criteria were the subject of extended discussion among the project team, other staff members, and the board. Ultimately it was decided that ridership thresholds should be set at levels that not only would be likely to be cost-effective but also would provide some incentive for considering redevelopment around the existing stations with low performance. Ridership (station entries and exits) is estimated for each station for the planning horizon year; for multiple-station expansions, the station average is also estimated. Committed transit-oriented development and access improvements are considered in preparing the estimates.

The ratings for BART technology, measured in trips (entries and exits) per day, are as follows:

- Low: <5,000,
- Low-medium: 5,000–9,999,

- Medium: 10,000–13,999,
- Medium-high: 14,000–20,000, and
- High: >20,000.

These levels would ensure that a project rated medium or higher would produce riders at or above the current system per-station average. Lower ridership levels would be needed for less costly forms of transit.

Costs

Costs for a BART expansion can vary considerably, depending on location (aboveground or underground), station design, whether new track must be constructed, and so on. Alternative technologies also can reduce costs, because most are less expensive than BART technology. Both total costs of the proposed expansion and costs to BART—total costs minus costs covered by partners (e.g., cities and counties, developers, employers)—are considered on a case-by-case basis. Alternative technologies also would be considered case by case, depending on the availability of right of way, local ridership levels, and local preferences.

Transit-Supportive Land Use

Land use is a local responsibility, and BART does not have the authority to mandate land use plans for station areas. However, for each area, existing and planned land uses determine the type and level of activities, travel, and transit use, which BART uses to determine ridership potential. Policies, plans, and regulations that are likely to generate strong transit ridership include

- Areawide growth management that concentrates development around transit corridors and station locations;

- Detailed corridor and station area plans and policies that support high-density development with land uses, building designs and layouts, street and sidewalk designs and layouts, and parking management to ensure transit- and pedestrian-friendly development;
- Zoning and other development regulations that permit higher development density, mixed-use development, and transit-and pedestrian-friendly land uses;
- Reduced parking requirements consistent with and supportive of high transit, bike, and walking mode shares; requirements for the provision of sidewalks, bike lanes, and bike parking; and transit-and pedestrian-friendly street designs;
- Regulatory and financial incentives to promote transit support development; and
- Actions to implement land use policies (including community outreach in support of transit-supportive land use planning and policies) and commitment to inter-jurisdictional consensus on land use.

Example ridership calculations for development within 0.5 mile of a station are listed in Table 4. The data illustrate the relationship between density and ridership for two common land uses, commercial and residential. In the examples, a BART mode share of 10% of work trips is assumed for the commercial development, and a BART mode share of 30% of work trips is assumed for the residential development. [These mode shares have been observed at existing suburban BART stations, but the mode share clearly would need to be estimated for the specific location and could differ from the ones shown. Analysis of current and future travel patterns, using journey-to-work data and regional forecasts from U.S. census data (various years), provides a basis for a first-order estimate of suitability of BART services in meeting the travel pattern; land development patterns and competing travel times are then considered to produce a first-cut mode share estimate.] With these “typical” mode shares, an employment center would need to have at least 25,000 jobs to be rated medium-high; a residential center would need 7,500 units or more for such a rating.

TABLE 4 Transit-Supportive Land Use Evaluation: Examples

	Low	Low Medium	Medium	Medium High	High
Employment Center (approx. 3 employees/1000 sq. ft.)					
Employees per Gross Acre	<10	10-20	20-50	50-100	>100
Million sq. ft. of Commercial Space Within 1/2 Mi. Radius	<1.7	1.7-3.3	3.3-8.3	8.3-16.7	>16.7
Est. Employees Within 1/2 Mi. Radius	<5000	5001-10,000	10,001-25,000	25,001-50,000	>50,000
Est. Work Trips (2 ways) at 10% Work Mode Share, Two Ways	<1000	1001-2000	2001-5000	5001-10,000	>10,000
Residential Center (avg. 1.2 workers/household)					
Residential Density (units per gross acre)	<5	5-10	10-15	15-25	>25
Residential Density (units per net acre)	<15	15-30	30-45	46-75	>75
Est. Units Within 1/2 Mi. Radius	<2500	2501-5000	5001-7500	7501-12,500	>12,500
Est. Trips at 30% Work Mode Share; Two Ways	<1800	1801-3600	3601-5400	5401-9000	>9000

Note: Work trips assumed to be about half of total trips (example mode shares based on observations at suburban stations).

BART staff members develop a comprehensive station plan as part of the project development process. The strategic opportunity assessment provides an opportunity to investigate alternative station locations and their likely costs and potential for attracting a high level of ridership. Stations located in areas where high-density development already exists or can be built within walking distance (0.5-mile radius) of the station clearly are preferred. The ratings are defined as follows.

- **Low.** Station location does not have and would not support transit-oriented development (i.e., land is unsuitable for such development, there is no foreseeable demand for such development at the location, or land regulations currently prevent such development and support for change is lacking); station location would negatively affect the quality of the station experience for patrons (e.g., freeway median).
- **Medium.** Station location has good potential for transit-oriented development (on the basis of existing development, market studies, local commitment to additional development, or a combination); station location would provide an acceptable station experience for patrons.
- **High.** Station location already has substantial transit-supportive development or has plans and zoning in place plus strong market potential for additional transit-oriented development; station location would provide a good experience for patrons (e.g., downtown).

Areas that have market potential but currently lack sufficient development to produce ridership levels justifying a BART investment would be encouraged, but not required, to prepare ridership development plans and in so doing could raise their ratings and ridership estimates. The land use component of a ridership development plan could take the form of a specific plan—a formal instrument under California law that combines planning, subdivision control, zoning, infrastructure provision, and urban design standards in one document—or a simpler zoning amendment that permits transit-oriented development around stations. A ridership development plan also would include transit access planning, discussed in the next subsection. In the alternative, an area that did not meet ridership levels for BART and did not want to develop at a level to justify BART could opt for a less costly transit technology and thus require a lower ridership threshold for cost-effectiveness.

Transit-Supportive Access

Currently about 45% of BART patrons arrive and depart the station on foot, by bicycle, or on another transit vehicle. However, access mode shares vary significantly among the stations, and many suburban stations are heavily dependent on automobiles. Because parking is a major cost and the lots themselves can be barriers for pedestrians and cyclists, BART has put more emphasis in recent years on walk, bike, and transit access. BART also works with local jurisdictions to develop access plans.

Stations located amid areawide, fully connected, well-designed multimodal transportation systems (including sidewalks, bike routes and lanes, and local transit services) receive high ratings if these modes are already well used. They receive medium ratings if their use is below the regional average. For pedestrian and bike access, the topography of the station area is a consideration; for transit, the number and frequency of routes with headways of 15 min or less

(especially during the peak period) and the availability of evening and weekend service are considered. Areas with incomplete or missing sidewalks, bike routes, or transit services would receive a low rating.

Regional Network Connectivity

Projects that provide new intermodal connections (e.g., to an airport, an intercity rail station, another commuter rail line, or a light rail line) receive consideration for the added convenience these new connections would allow. The assessment focuses on the number of likely transfers among the systems.

System Capacity

System capacity is an important consideration for BART, because station and line haul capacity has become constrained in some locations. A project that would increase core system capacity would receive a high rating for this reason. Similarly, a project that increases redundancy and improves recovery capabilities would be rated high on this criterion, as would a project that provides access to new yard and support facilities. A project that minimizes demands on the core system would receive a medium rating; a project that would add to the demands on the core system would be problematic and therefore would be rated low on this criterion.

Finance

A capital finance plan and an operating finance plan are developed as part of the detailed planning for a project; during the strategic opportunity assessments, a preliminary evaluation of financial capacity is conducted.

For capital financing, a high rating would be given to a project that is proposed to be fully funded from a stable, reliable, available source. Furthermore, the funding source would have to be one that could not be used for BART renovation or core system capacity needs, and for a project outside the district, project funding could not be competing for the same funds as within-district extensions. An adopted county sales tax and developer financing for a station are examples of sources that could qualify for a high rating. A medium rating would be given to a project with partial funding or funding from a source that is not yet assured (e.g., a proposed sales tax extension). A low rating would be given to a project with no clear funding sources or to a project whose proposed funding would compete with other BART funding needs.

For operating finance, the rating would depend on two points: estimated farebox recovery (low, <30%; medium, 30% to 50%; and high, >50%) and the stability, reliability, and availability of the proposed operating subsidy. In addition, for projects that extend outside the district, funding sources that do not draw on or risk the use of district operating revenues would be necessary for a high rating.

Partnerships

A final criterion for project evaluation is the degree of community and stakeholder support. Partnerships that include substantial financial participation, provision of access services, and development of

transit-supportive plans would result in high ratings; lack of such partnerships or lack of local support would result in a low rating.

Early Implementation Experience

Implementation of the BART system expansion planning process and criteria began gradually and somewhat informally; as staff members discussed the approach with stakeholders, they were often asked to apply the proposed criteria to specific projects to determine how they would fare. Not everyone was happy with the results. Some stakeholders believed that because they had been BART taxpayers for years, they deserved BART service, and they were concerned that the ridership criteria would make it difficult for them to get that service. Some were put off by the focus on transit-supportive development, noting that land use was a purely local prerogative. Some were less than happy to note that their likely ridership levels would not justify the use of BART technology. Nevertheless, most stakeholders recognized the financial realities that propelled the new policy, and several local jurisdictions began work on plans for land use and access that are designed to boost ridership. Several others turned their attention to somewhat less costly transit alternatives.

One issue that has arisen is how to handle the multiple-station extension in which one or more of the stations seem unlikely to attract sufficient ridership or develop transit-supportive land uses, due to lack of market or political opposition to density. In the case of an end-of-the-line station, this situation clearly would be the basis for a low rating for that portion of the extension unless the locality either bought down the costs substantially or found other ways to raise ridership levels (e.g., by serving as a major park-and-ride location). For a midline station, if the outlying stations are justified, then the marginal cost of the station and stops would be the main consideration. It also has been suggested that if a single local jurisdiction desires multiple stations, their costs and benefits might be averaged. Clearly, this topic will require more attention.

A second issue stems from the uncertain reliability of land use plans and zoning. Because local governments in California are free to make changes to plans and zoning until development approvals are in place, there is some risk that a plan to support a significant transit investment could be revised in a way that would put the investment at risk. Strategies for dealing with this contingency—including possible agreements on operating cost payments—have

been used in two recent extension negotiations and may be applied more widely.

CONCLUSIONS

BART is now using a new planning process for system expansion that seeks to build ridership, match technologies to markets, and seek cost-effective solutions. BART uses a strategic opportunity assessment as an initial, sketch-planning evaluation tool and applies criteria and a rating system to evaluate proposals at this stage and the environmental review stage. The rating system serves a dual purpose by signaling to local jurisdictions both the kinds of access and the land development that would support a BART investment.

Local jurisdictions are being encouraged to prepare a ridership development plan that puts in place transit-supportive plans, zoning, infrastructure, and services. Application of the new process has led to transit-supportive plans and zoning changes in several local jurisdictions; many other jurisdictions that are not prepared to make large changes in land use are considering lower-cost transit alternatives.

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