Light Rail Transit Implementation Perspectives for the Future: Lessons Learned in Silicon Valley

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The implementation of the Tasman Corridor Light Rail Transit (LRT) Project is described from inception through final design. First, the project goals and the system layout and operating characteristics are discussed. Subsequently, developments in the physical configuration, corridor land use, costs, institutional environment, and funding arrangements are presented, followed by the lessons that may be learned from the implementation of the project. The Tasman Corridor is a 20-km (12.4-mi) $530 million light rail extension of the Guadalupe Corridor LRT system in Santa Clara County, California, and is an important part of a multimodal regional transportation network that is planned in Santa Clara County. The Tasman Corridor Project's 2-year final engineering phase is essentially complete. The California and Bay Area economic profiles have changed with significant impacts to housing, business, and defense industries. In addition, the local funding environment has become uncertain. The Tasman Corridor Project offers valuable perspectives for the implementation of the LRT systems of the 21st century.

Since 1974 the Santa Clara County Transit District (SCCTD) has played an important role in serving the transportation needs of the 1.5 million residents of Santa Clara County. With a 33.8-km (21-mi) light rail transit (LRT) system and 72 bus routes, SCCTD serves more than 150,000 passengers a day with light rail that connects residential areas with regional employment centers and express and local bus service. As one of three counties forming the Peninsula Corridor Joint Powers Board, the SCCTD also participates in the 125.6-km (78-mi) CalTrain commuter rail system between Gilroy and San Francisco. SCCTD is also responsible for the implementation of the countywide transportation plan, which includes a commitment to an ambitious rail corridor development plan for Santa Clara County. A critical link in this regional rail network is the Tasman Corridor LRT Project (TCP).

The objective of this paper is to discuss the perspectives gained and lessons learned from the TCP implementation from initiation through final design. First, the accepted goals for the project and the system layout and operating characteristics will be discussed. The developments that have taken place in the physical configuration, corridor land use, costs, funding environment,

and institutional arrangements during the period from inception until now will also be presented. Some perspectives on the developments since the inception of the project will be presented, and some comments will be made regarding the effects of these developments as related to the attainment of the project goals and objectives. Finally, some lessons that may be learned from the implementation of the project will be presented.

System Goals and Objectives

The TCP policy oversight committee (POC) and technical advisory committee have developed seven major goals for the project (*1*):

1. *Mobility.* Provide a balanced transportation system promoting safe and efficient movement of people.
2. *Environmental considerations.* Preserve and enhance the environment.
3. *Land use and regional development.* Develop a transportation system compatible with adjacent land uses and consistent with planned regional development.
4. *Economic considerations.* Develop a transportation system providing the most efficient and effective use of limited resources while benefiting the public.
5. *Financial feasibility.* Develop system on the basis of realistic estimate of resources.
6. *Equity.* Provide a transportation system designed to meet the needs of all groups.
7. *Community and institutional considerations.* Maximize community acceptance and political and institutional support.

Each goal is accompanied by specific objectives developed by the project team and the community. The development of the TCP layout and operating characteristics have been based on these goals and objectives.

System Layout and Operating Characteristics

A brief description of the rail system configuration follows. A more extensive description can be found in another paper presented at the Institute of Transportation Engineers' Sixth District Conference in Portland in July 1994 (*2*).

System Plan

The Santa Clara County Transportation Plan, known as T2010 (*3*), provides guidance to the SCCTD and all transportation decision making in the county. The document establishes a program for transportation and land use actions designed to make the transportation system perform more effectively and Santa Clara County a better place to live and work (*3*). As a key component of the transit element, the plan includes the long-range rail master plan as the basis for rail corridor development.

In addition to specific corridor goals, T2010 calls for the development of activity center systems (such as transit-oriented developments and shuttle service) at key locations to support the rail plan and includes a pledge to assess whether rail development plans adequately address systemwide operating issues, intermodal facilities, feeder bus service, and coordination of land use plans. The studies and modeling performed during the preparation of the T2010 plan indicate that transit use would rise substantially if the recommended improvements were made. By 2010, between 6 and 10 percent of work trips would be made using transit, more than doubling the present transit share.

The Association of Bay Area Governments (ABAG) has predicted up to 33 percent growth in employment in Santa Clara County between 1990 and 2010. In addition, ABAG has predicted as much as 8 percent population growth in Santa Clara County between 1990 and 2000. It is clear that this growth in population and employment will increase the demand on the transportation network. As a result of the prospect of this increasing demand, the region has commited to improving the public transit system.

The system as originally foreseen according to the T2010 plan and approved by the transit district board of supervisors in 1992 is shown in Figure 1. The Guadalupe Corridor system was already in operation at that time.

The T2010 rail corridor priorities were established to define clearly the region's priorities for rail corridor planning, design, and implementation. The rail element includes specific corridor completion goals for the years 2000 and 2010 (Figure 1). For 2000, the T2010 plan envisages the completion of the CalTrain Gilroy extension and upgrade, the Tasman Corridor, the Fremont–San Jose Corridor, the Vasona Corridor, and the Capitol/Downtown-Evergreen Corridor (in priority order). As of 1995, the CalTrain project is complete; the Tasman project has completed final design; the Fremont–San Jose corridor has undergone preliminary environmental review; the Vasona project is undergoing environmental review and conceptual engineering; and a preliminary study of the Capitol Corridor segment of the Capitol/Downtown-Evergreen project has been completed.

For 2010, the T2010 plan calls for completion (not in priority order) of four additional rail corridor projects: DeAnza, South San Jose, Stevens Creek/Alum Rock, and Sunnyvale/Cupertino. To date, no studies have been completed on these corridors.

Existing Rail System

The existing 33.8-km (21-mi) Guadalupe Corridor LRT system includes 33 stations, 50 light rail vehicles, and