Designing Transit-Based Communities

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What does it mean to build housing near rail transit stations?

The concept of "transit-based housing" or more broadly "transit-based development" increasingly is part of the language of urban planning today. Transit districts and city planning departments are looking to greater densification at rail transit station areas to meet housing needs and maximize transit ridership.

Yet, very little attention has been given to the urban design challenges of station development. Rail station areas provide opportunity to do more than add a few additional housing units or commercial structures near the station. Station areas provide opportunity to build transit-based communities, to build cluster residential with mixes of uses that maximize the rail transit line, and that results in housing desired by consumers.
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DESIGN CHALLENGES OF BUILDING NEAR TRANSIT STATIONS

As architect Tom Jones of San Francisco has noted, building near rail transit stations gives rise to unusual design challenges. These challenges are largely rooted in the potential conflicts between two goals: (1) the role of the transit station as the focus of commuting activity, and (2) the elements of safety, open space, access to retail stores, and individual privacy that make for marketable multi-family housing.

In particular, five challenges arise:

1. Parking and circulation needs of commuter vehicles at the rail transit station.
2. Achieving open space and a sense of place (with the presence of many commuters and parking).
3. Achieving safety and security of residents (with the presence of many commuters).
4. Overcoming physical barriers presented by the site.
FOUR EXAMPLES OF TRANSIT-BASED COMMUNITY DESIGN

These challenges are being addressed today by a number of leading California architects, who are designing developments near rail transit stations. It is worth considering their work, and how they have sought to meet the needs of the transit commuters and of the residents.

In each case, the designer has looked at the station area in the form of more than a collection of buildings, as an integrated neighborhood. The designs discussed briefly below are of areas around two existing transit stations, Pleasant Hill BART and Hayward BART, and two prospective stations, a station on the Sacramento light rail line, and the proposed East Dublin BART station.

1. Pleasant Hill BART Station Area

Overview

The Pleasant Hill BART station area is often cited as the one good example of transit-based development in Northern California.

This station area today, shown in Figure 1-1, has the highest concentration of multi-family housing within a one-quarter-mile radius of the station of any Northern California transit station outside of the central business districts of San Francisco and Oakland: over 1,700 multi-family housing units within a one-quarter-mile radius. It also includes a concentration of commercial development within the one-quarter-mile radius: between 1984 and 1991 over 1.4 million square feet of office space were completed.

However, the station area plan, drawn up in the early 1980s, was not fully implemented, with the result that the various structures stand, in the words of one urban design consultant, as a collection of "tree standing, unrelated pieces." The station area takes advantage of the rail system more completely than other BART areas, but fails to fully achieve the opportunities for a transit-based community.

The Pleasant Hill Specific Plan

The Pleasant Hill station area design started in 1981. Four local agencies — Contra Costa County, BART, the city of Pleasant Hill, and the nearby City of Walnut Creek — came together to develop a master plan for 125 acres centered around the station, and including some of the land currently used for parking. At the time, the area around the station consisted largely of older, modest single-family homes, and strip commercial, on small parcels.
The policy committee hired the well-known San Francisco-based firm of Sedway/Cook. The plan, as shown in Figures 1-2 and 1-3, delivered in August 1982, set out a series of goals to be achieved, including:

- Increase the concentration of high-intensity employment uses into the station area.
- Integrate housing into the Station Area.
- Provide sufficient retail and other commercial services and public open space amenities for station area employees, BART riders, and residents of the station area and nearby residential and commercial uses.
- Promote a station area appearance, projecting a positive image and high regional and local identity.
- Protect individual specimens of native oaks and make the trees a major design feature of the area.
- Maintain views to Mt. Diablo.

Note that buildings "C" in Figure 1-2 are to be on land currently used by BART surface parking.

To achieve these goals, the plan recommended policies to maximize development in the area nearest the station, employ redevelopment policies in assembling parcels, and encourage public transit usage:

- Designating a station core area within 700 feet of the station, with greater land density.
- Assembling small parcels into functionally viable sites.
- Providing a development bonus of a 50 percent increase in permissible FAR to any development at which least 30 percent of employees regularly commute by means of public transit.
- Constructing nearly $30 million in public infrastructure and traffic improvements prior to development.

Pleasant Hill Station Area Today

A number of elements of the plan were achieved over the next ten years, due mainly to the aggressive actions of the County of Contra Costa Redevelopment Agency.

The Redevelopment Agency was able to promote multi-family housing within the core area through zoning and parcel assembling, and also through the economic incentives of writing down the costs of land, and of subsidizing units. Among the units built and densities: Treat Commons, 510 units, at 4.5 dwelling units per acre; Bay Landing, 282 units, at 4.3 dwelling units per acre;
Park Regency, 392 units, at 72 dwelling units per acre; and Wayside Plaza 120 units, at 60 dwelling units per acre.

The multi-family housing is primarily market-rate, with a mix of 15-20 percent subsidized units at Park Regency and Wayside Plaza.

The Redevelopment Agency also has been successful in attracting new office construction near the station. Among the major office tenants are the region's largest corporations, attracted by the transit proximity for employees drawn throughout the region: Chevron, Bank of the West, PacTel Corporation, Citicorp, and Levi Strauss.

Further, a Contra Costa Centre Association has been formed to market the station area, and to develop both a child-care program and transportation systems management (TSM) program. The Centre office provides information to employees on child-care centers within a 1-1/2-mile radius and publishes a newsletter giving additional information regarding child care. The Centre has also set up a child-care fund. Money from the fund goes towards the construction of child-care facilities and an affordability program for employees of the Centre. Eventually, the need for trips will be reduced, enhancing the transit and pedestrian environment around the station.

Among the TSM program items is the goal of reducing single-occupancy-vehicle (SOV) traffic among the Centre's employees to 65 percent of the total workforce. By 1991, 30 percent of the employees working at Contra Costa Centre commuted to work by a mode other than SOV, either by BART, bus, vanspools, carpools, bicycles, or walking. Other highlights of the TSM program include a free noon-time shuttle service to nearby Pleasant Hill, Concord, and Walnut Creek.

Both the TSM and the child-care programs address the need for reduced trips and are a move towards integrating multiple uses and creating a community around the station. Yet, though the Pleasant Hill BART station area, with its high residential densities and its ambitious TSM and child-care programs, is ahead of the other suburban station areas, it lacks a number of the elements of an effective transit-based community.

The retail components envisioned in the specific plan have failed to materialize. A passenger who disembarks from the station finds himself in an immediate area of office complexes, with the multi-family housing set back. There are no neighborhood-serving shops, such as convenience stores, or even shops catering to commuters such as coffee shops, dry cleaners, or grocery stores.

The station area is deserted on the nights and weekends. The regional uses, such as movie theaters or assembly halls, are in nearby downtown Pleasant Hill, Concord, or Walnut Creek.

Further, the open space elements envisioned in the specific plan are also absent. The multi-family developments, particularly the Park Regency, include sufficient open space; and the
Embassy Suites Hotel is generously landscaped. However, the public spaces are absent, and the streets are largely deserted during the day.

Further, the access of housing to the station is limited. The large BART surface parking lot imposes a circuitous route from Wayside Plaza and Treat Commons to the station entrance.
Figure 1-1
Pleasant Hill BART Station Area Today
Figure 1-3
Pleasant Hill BART Area Plan
2. Hayward BART Station Area

Overview

The City of Hayward, located across the Bay and approximately 20 miles from downtown San Francisco, is one of a series of fast Bay towns that grew up in the late 1800s on the path of the railroad. These towns were organized around an orthogonal grid of streets and sidewalks, with a public square at the center.

Up through the 1950s, Hayward had an active downtown, with numerous small businesses, people on the streets, and civic buildings including the City Hall, Post Office, and Veterans Memorial Building. In 1952, First Street, which previously had served mainly the local traffic, became Foothill Boulevard, and a regional traffic network, bringing additional traffic and cutting through the downtown area. Additionally, a number of large setback buildings surrounded by surface parking came into the downtown area, including the current Mervyn’s and City Center.

The result by the late 1980s was an aging downtown of single-room occupancy hotels and rooming houses, and older retail.

The City Council hired UC Berkeley’s Dan Solomon, to develop a plan for re-developing the downtown area. In January 1992, Solomon presented this plan, which centered on development around the BART station, and tied the BART station to the nearby downtown through new multifamily housing, added to retail, and a new downtown plaza.

A Transit-Based Community in Hayward

Figure 2-1 shows the current downtown Hayward. The BART station is surrounded by two large surface parking lots. North of the parking lot is the downtown.

Figures 2-2 and 2-3 show the reconstituted downtown Hayward: in Solomon’s words, “A clear and centered downtown Hayward with housing, shopping, restaurants, and well-formed public spaces for cultural and civic activities.” This new downtown is meant to tie in closely with the BART station.

The new downtown includes an additional 675 units to 1,545 units of housing, an additional 66,000 sq. ft. of retail and 40,800 sq. ft. of office space. Additionally, the new downtown includes the other following components, as shown on Figure 2-3:

- Supermarket expansion to 47,600 sq. ft.
- Firehouse, 12,000 sq. ft.
- Focal Point Building, 55,000 sq. ft.
- New banner gateways
- BART pedestrian routes
- Reconfigure bus terminal
• New bus canopy
• Mission Boulevard w/median park, 72,000 sq. ft.

The Solomon plan not only adds greater density of housing and office to the BART station area. It also reconfigures the area to link the transit station by easy pedestrian route to the downtown. Particularly, the Solomon plan:

• Reconfigures the area around the BART surface parking into a pedestrian-oriented area with a Downtown Plaza.
• Reconfigures the existing drop-off land so that passengers need not cross the paths of buses, and reduces the noise of idling buses through the bus canopy.

The Solomon plan has been adopted by the City Council early this year after a series of public hearings. The City, though, by April had no timetable to start the development process.
Figure 2-1
Hayward BART Station Area Today
Figure 2-3
Solomon Plan for Hayward Station Area
3. East Dublin BART Station

The East Dublin BART station is part of the Dublin/Pleasanton extension of the system currently underway and to be completed in early 1996. The East Dublin station site, as shown in Figure 3-1, is surrounded by the Hacienda Business Park on the south side of the I-580 freeway (the route for the extension), and undeveloped land currently owned by the United States Government on the north side.

The architect firm of Heller & Leake was commissioned in 1991 by the Prudential Property Company, the owners of Hacienda Business Park, and the City of Pleasant Hill to design a plan for the station area.

The plan, as shown on Figure 3-2, envisions the area as a new office and retail center on the north side, and a high-density residential center on the south side.

On the north side, the immediate station area leads into a public plaza. Two "signature" 12-story office buildings surround the station plaza. Structured parking for 2,700 vehicles is to the right of the station. The north side contains over 3.4 million square feet of office space and 228,000 square feet of retail space within a one-third mile of the station. Figure 3-3 shows a view of the north BART plaza, and Figure 3-4 shows a view from the plaza to the office complexes. A cultural facility stands at the northwest corner of the site.

On the south side, the station also leads into a plaza of small shops and restaurant, and a 45,000-square-foot movie theater complex, as shown on Figure 3-5. The retail is surrounded by multi-family housing, three to four stories in height, as shown on Figure 3-6. The housing densities decrease the further from the station, with over 2,000 units planned for within a one-third mile of the station. The station area also includes a 500-room hotel.
VIEW OF NORTH BART PLAZA

Figure 3-3
East Dublin BART: North BART Plaza
4. Sacramento West Laguna Creek Station

Architect Peter Calthorpe has been at the forefront of consideration of transit-based development over the past decade. In 1990, Calthorpe Associates prepared "Transit-Oriented Development (TOD) Design Guidelines" for Sacramento County. The following year, Calthorpe Associates prepared similar "Transit-Oriented Development Design Guidelines" for the city of San Diego. Further, in the past three years Calthorpe has designed an example of this transit-oriented development at the prospective West Laguna Creek station in Sacramento County.

For both Sacramento and San Diego, Calthorpe's guidelines distinguish between the "Urban TOD" and the "Neighborhood TOD." The "Neighborhood TODs" are located on the Feeder Bus Line Network within 10 minutes' transit travel time from a light rail stop. The "Urban TOD," in contrast, is the development of greater density located at the transit stop.

The "Urban TOD" is meant to be nothing less than a small village surrounding the transit stop. Residents can carry out most of the errands and meet their shopping needs within walking distance of their homes. Many will even work in office buildings within walking distance of their homes. They will use the rail transit line for longer trips or, for those who do not live near work, for commutes.

Among the principle features of the Urban TOD:

- 1/4-Mile Radius: The development is concentrated within a 1/4-mile radius of the station, considered to be the relevant walking distance.
- Mixed Uses of Development: The Urban TOD contains a concentration of "moderate- and high-density" housing. It includes more than housing, though. It includes "neighborhood-serving" retail and commercial uses.

Further, the Urban TOD contains generous open space, with one or more neighborhood parks and public plazas.

- Pedestrian-oriented neighborhood: The Urban TOD concentrates housing, office, and retail in such a way that residents or employees can walk or bicycle between uses. The rail transit line is to be utilized for longer trips.

Figures 4-1 through 4-4 illustrate the Urban TOD. Figure 4-1 illustrates the general design of the TOD. Note that the transit stop is surrounded by the mix of uses. Figure 4-2 illustrates the small neighborhood shops that are part of the core commercial area. Figure 4-3 illustrates the scope of the TOD: at least 40 acres in size, and no more than 160 acres. Figure 4-4 illustrates the possible public uses of the TOD: parks, plazas, public buildings.

In Sacramento County, Mr. Calthorpe has had opportunity to design a TOD at the proposed West Laguna Creek station. The proposed station is located 13 miles from downtown Sacramento. A light rail line does not currently exist for the area, and is not expected to reach the area for 12 to 15 years.
Nonetheless, Mr. Calthorpe succeeded in convincing the owner/developer of the area, River West Development, to redesign a traditional suburban development planned for 800 acres in West Laguna Creek into a TOD.

The new West Laguna Creek development, as shown on Figure 4-5, is a small village set around a town center, with shops, a recreation center, and a town square at the core. Housing near the town center is multi-family and of some density. Farther from the core are the larger single-family units.

The West Laguna Creek development is projected at 1,858 single-family units and 1,512 multi-family units. It also includes 75 acres of lakes and 38 acres of parks.

The development of West Laguna Creek is proceeding at this time. The village green is completed, as are the first single-family houses; and the town hall is set to be completed in late June.
Figure 4-1
General Design of Calthorpe's Transit-Oriented Development (TOD)

Figure 4-2
Small Neighborhood Shops That are Part of TOD Core Commercial Area
Figure 4-3
Scope of TOD 40-160 acres

Figure 4-4
Possible Public Uses of the TOD:
Parks, Plazas, and Public Buildings
III

CONCLUSIONS

As previously noted, each of the given four designs looks at the rail station area as an opportunity not only for densification of development, but for development that ties together in an area in which people want to live. The Pleasant Hill BART station area, Hayward BART station area, and East Dublin BART station area each represent the "infill" approach: developing new transit communities in existing areas of development. The West Laguna Creek development represents the "new community" approach: developing a transit-based community in formerly agricultural land, outside of the urban and suburban core, to be served later by rail transit.

The four designs do respond in many similar ways to the design challenges raised in the introduction, but lessons are still being learned.

The current BART stations, as with rail transit stations throughout the country, are surrounded by large surface-parking lots. The transit-oriented designs do not ignore large-scale parking for commuters. Instead, they replace the surface-parking lots with more concentrated, structured parking.

Twenty years after the Pleasant Hill station opened, the vast surface-parking lot is being replaced by structured parking, in line with the Sedway/Cooke design. At Hayward, the Solomon design replaces the surface parking with structured parking on one side of the station and housing on the other side. Similarly, the designs provide station access by buses and drop-off vehicles. In Hayward, the Solomon plan adds a bus canopy to reduce the noise of idling buses.

The importance of carefully designing parking systems cannot be understated. Although auto access to transit is crucial, a pedestrian environment depends upon alleviating the physical burden of dodging and weaving through vehicles, and the visual burden of the "sea of parking."

The Laguna West station design makes less provision for vehicles. The station is near the Town Center, a village green bordered by multi-family housing and the Town Hall. The design emphasizes pedestrian access to the station and access by bicycle.

Unfortunately, at Laguna West, one of the anchor retail stores has refused to sacrifice on-site, free parking for more pedestrian-friendly street parking. Selling users on the risk of trying something new will demand compromise, at least until these designs are tried and tested. An approach which compromised progressively less in each new project seems appropriate.

Achieving effective open space is one of the most difficult steps in Transit-Based Design. These designs do make generous provision for open space, but ideally open spaces will be designed as public spaces that enhance the feeling of community among those who live and work in the transit area. The Laguna West Station is near the village green Town Center, and nearby

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neighborhood parks. The Hayward station plan incorporates parks and a public plaza, as does the East Dublin design. At Pleasant Hill, project designs discourage public access to open space and limit its value to residents. Together with a glut of residual space that surrounds more or less free-standing buildings, the failure to design the spaces has, for now, curtailed an opportunity to create a sense of place.

The concentration of activities is a key element in making the station area attractive to consumers, employers, and residents. The designs seek to achieve a sense of place through public buildings and also through a critical mass of activities, creating a variety of things to do at the station during the course of a day.

The designs do not speak significantly to the safety and security of residents who live near the station. The assumption of all of the designs is that the station areas do not pose safety or security issues different from other areas. The experience of existing housing around BART stations indicates that train noise is not a negative factor even for units within 50 yards of the tracks. However, there is little good experience one way or another regarding the security issue.

The features of a particular site can act as barriers to creating a transit-based community. These barriers include:

- Shape and size of available land
- Location of site with respect to existing development
- Consolidation of parcels and acquisition of land
- Orientation of existing transit stations
- Existing transportation facilities may present barriers or bisect a site
- Existing structures or uses which are to remain

Each case does demand a unique approach, but the following are some recommendations for successful transit-oriented development:

- Re-orient or add access to transit stations. Both the Pleasant Hill and Hayward BART station sites focus development on either side of the station, not just in one direction.
- Create buffers between the pedestrian environment and undesirable uses/transportation corridors. In both Hayward and Laguna West there are existing rail freight lines, and the East Dublin site is bisected by I-580. These corridors are usually treated by locating commercial areas or parking facilities in front of them.
- Do not remain constrained to existing street patterns within a redevelopment site. Streets may be closed, opened, narrowed, or widened as appropriate. In the Hayward plan, some streets are closed to provide better use of land, and some corridors are created to provide a spine around which the development is focussed.

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• Create a role for the automobile rather than simply blocking auto access. Use design elements to create streets which may be safely and pleasantly shared by pedestrians, autos, and bicyclists. This is well illustrated at the Laguna West site through the use of designated pedestrian and bicycle routes, and at the other sites through the use of structured parking.

In this paper, we have attempted to show, through examples, how rail transit stations can be used as centers of development. Over the next ten years, the success of transit-based communities will prove a crucial link in the ongoing viability of dense suburban center development and of rail transit. The immediate benefits in terms of housing, economic development, and mobility are immense, but equally compelling are the long-term secondary benefits, including reduced congestion, affordable housing, and air quality.

Although the expertise involved in establishing a transit-based community could only be addressed in a site-specific action plan (a product which NTRAC provides on a quasi-consulting basis), these examples and suggestions should be informative. In advocating and marketing the concept of a transit-based community, it is important to know the playing field and to see that challenges and barriers can be overcome through innovative design.