Working Paper

Connections: Travel Options, Mobility Management and Access Enhancements

Regional Transit-Oriented Development Strategy

April 16, 2015

Prepared for:
San Diego Association of Governments (SANDAG)

Authors:
Mike Singleton, AICP CTP (KTU+A)
James Lightbody, PE (AECOM)

Contributors:
Liz Drake, AICP (AECOM)
GB Arrington
San Diego Association of Governments (SANDAG)

Editors:
Bill Anderson, FAICP (AECOM)
Matt Gelbman, AICP (AECOM)
PREFACE

A series of Working Papers has been prepared for SANDAG as part of its efforts to develop a Regional TOD Strategy for the San Diego Region. The Working Papers focus on issues associated with implementing TODs in the San Diego region, drawing upon the experience and lessons learned from other metropolitan areas in their attempts to address similar issues. The Working Papers address the following topic areas:

- Urban Form, Density and Land Use (forthcoming)
- Financing Infrastructure and Community Facilities
- Housing Choices and Affordability
- CEQA Streamlining and Travel Forecasting
- Connections: Travel Options, Mobility Management and Access Enhancements
- Readiness Criteria: Metrics for Transit-Oriented Districts

“TOD” is typically an acronym for “Transit-Oriented Development.” This definition focuses on real estate development projects next to transit stations, often as public/private partnerships; however, this definition is narrow and does not reflect the importance of the relationship between transit stations and the surrounding community.

The Working Papers approach the “D” in TODs as “District,” an area, neighborhood or community that is conveniently accessible to transit. The size of a district will vary by location, topography, community characteristics, the pattern and concentration of residential and employment, and other unique factors. Districts are larger areas where some people are close enough to walk to a station, others are close enough to bike to a station or be dropped off by a friend or family member who is driving, or even use a car-sharing service. Thinking of the district in this larger context enables more opportunities to find sites for various types of development that are feasible – small lot housing and town homes, low-rise and loft housing, flats and, residential towers, or main-street type of commercial, urban flex and campus space, institutional facilities, and taller office buildings – all within mixed-use environments that are walkable. TOD is an important to the San Diego region’s future and is expected to contribute significantly to meeting the projected demand for new housing and employment growth that SANDAG estimates will occur in the future.

The Working Papers are focused on how to implement TODs. They describe the challenges, some of which are not unique to San Diego. They mention examples of how other metropolitan areas around the country are trying to address these challenges and conclude by suggesting some ideas for consideration. The ideas for consideration are meant to stimulate thought, questions, and possible solutions.

The Working Papers are being published prior to a TOD Implementation Forum (January 27 and 28, 2015) that SANDAG is holding to get input that inform the development of SANDAG’s Regional TOD Strategy. As such, the Working Papers are drafts that will be augmented by the input received during the TOD Implementation Forum, and will be used to support the preparation of the Regional TOD Strategy and an agenda for success.
CONNECTIONS: TRAVEL OPTIONS, MOBILITY MANAGEMENT AND ACCESS ENHANCEMENTS

Introduction

Many regions, including San Diego, have experienced growth in the past 50+ years that, coupled with increased reliance on single-occupancy vehicle trips, has led to a relatively low-density, car-oriented land use pattern that contributes to higher vehicle miles traveled (VMT) and recurring congestion challenges. Other than Downtown San Diego, most of San Diego’s major employment centers are in campus, business park, planned unit development (PUD), and suburban environments rather than dense, pedestrian-oriented urban environments. Since the demise of San Diego’s financial sector (S&Ls and locally owned banks) in the early 1990s, Downtown San Diego’s share of regional employment growth has been declining. Open space systems and habitat planning efforts aimed at protecting endangered species, natural resources, and agriculture, as well as topographic barriers have all reinforced the need for avoiding sprawling patterns of development within the San Diego region.

Regional plans envision a shift to a more compact form with a greater emphasis on transit-oriented districts (TODs) to accommodate much of the future growth and help change mobility patterns to be less auto-dependent. Auto travel is still expected to be the primary method of travel but as the region grows other mobility options such as walking, biking, and public transit will provide options for the commuting public that will help alleviate marginal increases on the highway system that may be the difference between a functioning system and a chronically congested system. For this to happen, land use and transportation plans need to be coordinated.

The overall goal of TODs is to provide transportation choices for individuals that prefer mobility options, not to change transportation patterns for all. It is not possible (or desired) to change our transportation model in all locations. This Working Paper concentrates on how design changes at a district level can expand transit and other mobility options beyond the use of single-occupancy vehicles. A TOD is at an implementable scale and of sufficient size to affect urban and suburban travel patterns. A TOD can help to leverage public investments in transit improvements that will result in higher than normal transit ridership. A TOD can also capitalize on private investments in compact efficient development and the public realm to improve transit access to stations and achieve a greater degree of trip reductions, managing the demand for parking, and internal trip capture. TODs can provide benefits associated with healthy active transportation, fewer VMTs, energy savings, and reduced greenhouse gas emissions. TODs can also support broader health, social, economic, and environmental outcomes, including regional air quality, land use and sustainability goals.

Travel Options, Mobility Management and Access Enhancement Defined

This Working Paper divides mobility challenges and solutions for TODs into three categories:

1) The provision of travel options in a TOD that help to support transit as the primary day-to-day commute mode with back up mode choices that help to lower car use levels.

2) The development of mobility management policies, programs, land uses and improvements that help to reduce the number and distance of internal and external trips associated with TODs.
3) The enhancement of access for public and private rights-of-way and improvements to the experience that support walking, biking, and circulator connections to transit.

**Travel options** are further defined as choices beyond drive-alone vehicular use for commute trips and other daily trips within a five-minute access area by walking (approximately 0.25 mile), by biking (approximately 0.75 mile), and by driving (approximately two miles for automobiles traveling at neighborhood speeds, 25-miles per hour). Although the focus of this study is on public transit use, especially for the primary commute, a full suite of mobility options increases the likelihood of a person choosing an alternative to drive-alone modes. Mobility hubs can extend the traditional catchment areas around the transit center by integrating transportation services, supporting amenities, and urban design enhancements.

**Mobility hubs** are places of enhanced connectivity where different modes of transportation, including walking, biking, ridesharing, and public transit come together to provide additional connections to employment, housing, retail, and other services. Multiple mobility options, including carshare, bikeshare, ridesharing, taxi, shuttle, jitneys, and other modes can bridge the distance between transit and individual origin or destination points. SANDAG has received a state transportation planning grant from Caltrans to develop a San Diego County and Imperial Valley Regional Mobility Hubs Implementation Plan. Working with the Imperial County Transportation Commission, SANDAG will lead the plan to develop conceptual designs and strategies for different mobility hub station place types within the region.

**Mobility management** is defined as taking an active role in providing the policies, programs and facilities that better manage the amount of driving necessary for a person living, working in or visiting a TOD. The result of mobility management is to promote compact and complete communities or neighborhoods that integrate transportation with land use. These strategies include the management of parking resources and integrating the interests of automobile travel with the other modes for a comprehensive solution to mobility.

**Access enhancement** is defined as improving ways for a potential transit rider to access bus, rapid bus, shuttle, light rail and heavy rail commute options, preferably by modes other than auto access. If the primary access option is a private vehicle driven to a transit station, the likelihood of capturing this user as a regular transit rider is lower. Most people tend to stay in their vehicles, making a shift to another mode less likely. As an exception, some people may get dropped off at the transit station. Potential transit users accessing the transit stop by walking, riding a bike or using a bike share or car share program are likelier to adopt a transit-based commute. Along with influencing travel behavior, a reduced supply of local station area parking can lower transit agency costs for parking development, as well as land costs of dedicating large areas for transit rider parking. Providing secure bike lockers can encourage cyclists to ride bikes to transit. Car parking standards that are too high are a common impediment to the feasibility of infill development. Access enhancement also includes the encouragement of street and development designs (e.g., wide sidewalks, bike lanes, and landscaping) that facilitate a walkable and bikeable environment and foster a car-light lifestyle.

**Why Travel Options, Mobility Management, and Access Enhancements are Important to Transit**

The greatest return on public investment in transit is when it is coupled with efficient and compact land use development that creates a local population density that supports higher levels of transit use; a mixture of land uses that decreases the need for driving by providing walkable destinations for individuals who
wish to decrease reliance on vehicular use; parking management that avoids supplying or subsidizing an overabundance of free parking; the creation of streets that support active transportation; and the availability of several travel choices.

Travel options, mobility management and access enhancements work in concert to achieve the following benefits:

- attracting a higher level of transit use, cycling and walking trips;
- reducing single-occupancy vehicle trips and associated VMT;
- activating local public spaces;
- economically supporting adjacent land uses;
- creating more walkable and bikeable communities;
- improving physical health through active lifestyles;
- increasing mental health through increased social interaction;
- allowing seniors to “age in place“ and remain active in their communities;
- encouraging and supporting compact efficient land use patterns; and
- supporting private investments in development types that in turn support transit and other mobility options.

### Design and Planning Questions

Planning questions to address when providing **travel options** include:

1) What is the mix and level of comprehensive mobility services offered within a mobility hub that will optimize transit ridership?
2) How far can a mobility hub extend the typical transit catchment areas from the traditional 0.25-mile walk time to 0.5-mile or 0.75-mile walk times (assuming the walking environment is safe and comfortable) or to multiple miles from the transit center when using carshare and bikeshare programs?
3) How to meet daily trip needs beyond the primary commute when transit does not provide convenient connections to these other destinations?
4) What other trips will benefit from having origins and destinations located closer together? (e.g., home to school, home to recreation, work to shopping, etc.)

Planning questions to address when providing **mobility management** programs include:

1) What level of transit use and increased development density provides the right balance for a successful TOD?
2) What metrics should be used for assessing benefits?
3) Is there a direct connection between lower daily trips, trip chains (a sequence of trips followed by shorter stops) and increased non-auto related trips around a TOD based only on densities or does a TOD need a broad mixture of destinations, pedestrian improvements, public place-making efforts, branding, wayfinding, encouragement of street activation and adjacent business development?
4) What level of guaranteed ride home programs or mobility options is necessary to provide a back-up way to get to a destination if the primary commute (transit, walking, biking, carpool or vanpool) is no longer available due to weather, service schedules, or time of day due to unforeseen conditions?
5) How can transit-supportive parking policies that internalize the costs of parking free up financial resources for those that choose either a car-light or a car-free lifestyle and thus influence transit ridership levels?
6) What role can Transportation Management Associations, transportation demand management (TDM) policies and property-based assessments or end user incentives play in lowering trips related to TODs?

Design questions to address when providing access enhancements include:

1) What types of pedestrian and bicycle retrofits are necessary to increase the distance ranges for walk-sheds or bike-sheds along existing streets?
2) What level of protection and innovative active transportation solutions are necessary to attract a higher level of use by those that would bike to a transit station but are concerned about safety?
3) What role does the quality of the walking environment of street segments and street crossings play when determining the likelihood of walking based on safety, access, interest and comfort?
4) Improvements that make an area walkable, where pedestrians receive a higher than normal priority, may affect travel flow and vehicular levels of service. If so, how do we give priority to multi-modal levels of service versus conventional vehicle levels of service metrics commonly used? At what time should VMT measurement tools be used based on SB 743?
5) How should first mile / last mile access improvements be funded?
6) How should TODs be sized and planned relative to the level of transit service, given that increased frequency to more destinations will attract more riders and potentially more development?

SANDAG has identified pedestrian, bicycle, and traffic calming improvements around station areas as part of its Safe Routes to Transit Plan and broader active transportation planning efforts.

Ongoing Challenges

Community opposition is a common challenge for TOD projects. Although development intensity in TODs often generates debate, stakeholders are more likely to support urban design and pedestrian and bike improvements on safety grounds, particularly if such enhancements do not require the removal of traffic lanes or parking. Local businesses also tend to support carsharing and bikesharing, but these stakeholders can oppose such programs if they perceive negative impacts to customer parking. Adjacent businesses or nearby residents do not commonly support transit stations until after they have been built and are fully operational, when land values increase and foot traffic increases to benefit local businesses.

Many of the challenges for improving access to transit and in increasing mobility options are often found during the project review process. The challenges are generally not with the top-level policies and objectives found in general plans, specific plans, design guidelines and community plans but in the execution of policies that are already adopted.

Some of the major challenges associated with improving travel options in the San Diego region include:

1) The inclusion of transit prioritizations and dedicated guideways, including “queue jumpers” transit through lanes, or separated or dedicated transit-only lanes can be controversial. These tools are important for improving the service levels of transit to make them closer in time investment to vehicular trips.
2) Concern may exist that carshare program vehicles will remain in parking spots for a long period of time and take away parking for customers. However, data indicate that the turnover rates of carshare programs actually help the business and not hurt it.
3) Cab companies and shuttle and rental vehicle providers often object to Uber, pedicab, and Lyft services, fearing a loss of their customer base. However, customers of carsharing services, such as Zipcar or Car2Go, expand travel options who otherwise would have been likely to drive a vehicle. Zipcar market research in the US indicate that each Zipcar removes 15-20 personally owned vehicles from the system.¹

4) There is sometimes a concern by transit authorities that other travel options (bike use, carshare, carpool, vanpool, and special transportation services) may actually compete with local transit ridership. Any reduction is usually offset by an increase in transit use due as the market grows due to the availability of more options that enable riders to meet other daily trip needs aside from their primary commute.

5) The largest challenge for converting drive-alone commuters to transit users relates to convenience, time investment, and the unknown factor of reliability of alternative travel options. The unknowns include time reliability, frequency of service, cut off of service, or the availability of back up travel options in the event the primary service is not available. Another major challenge relates to non-commute trips to locations not serviced by transit within reasonable walking distances. Mobility hubs and other mobility options including guaranteed ride home programs could help a person decide to use transit if they feel that they are not as vulnerable to these unknowns.

Some of the major challenges associated with mobility management programs in the San Diego region include:

1) Policies on lowering trip rates and parking requirements for smart growth projects and TODs are often met with opposition by residents and the public over fear of congestion and loss of other parking spaces in areas around these projects.

2) The difficulty in finding funding sources for improving access in the area around TODs. Too often in the past, the transit agencies have had limited funding to extend access improvements a great distance. The lack of funding sources for improvements beyond the immediate areas adjacent to a project that would help support greater access and increased transit ridership is often a concern to community advocates and activists.

3) The lowering of parking requirements can help attract investments in projects and the unbundling of parking subsidies and hidden parking costs can provide money back to those who choose to be car free or car light. However, often area stakeholders believe that the parking demand will exceed supply in projects causing surplus demand to overflow into areas with on-street parking.

4) Parking pricing strategies can be used in conjunction with reduced parking supply at TODs to capture the value of the demand for public parking, which can then be reinvested back into the TOD with capital improvements and to fund staffing of transportation management associations (TMA).

5) Regional TDM programs are mostly voluntary and may face resistance from developers and employers and there is a lack of understanding by the public. These programs can have real results but limited enforcement or maintenance by subsequent employers or building owners can erode effectiveness. Developers that receive trip and parking reduction benefits need to provide ongoing methods that sustain lower parking demand and trip generation rates for their projects.

6) Few developments include the requirement of sustainable funding sources and the creation of employee transportation coordinators, transit passes, or other long-term efforts to assist residents, tenants and business owners in keeping trip generation and parking requirements at below normal levels.

7) Small infill developments in marginal smart growth areas or the partial implementation of mixed-use infill policies sometimes leave a potential TOD incomplete, without the benefits of a large number of services and destinations in walking or biking distance. Internal project or near-project vehicle trip capture rates may not fully materialize since these important local services are missing.

8) The relaxation of height restrictions and the lowering of parking and trip generation rates do not result in higher levels of non-vehicular mode shares, then the arguments on why these bonuses are offered in the first place tend to dissolve. If infill or higher density of development is permitted based on the promise of increased use of transit and other mobility modes, then the benefits of TOD, such as lower community wide auto-trips, shorter local trips, and less congestion on local freeways, highways and major arterials need to be demonstrated.

Cities that embraced TDM strategies in the past decades have learned that trip reduction is not simply a function of higher densities. By itself, higher densities only generate more traffic. Trip reduction is the outcome of a well-planned and coordinated package of TDM strategies including tighter parking supplies, charging market rates for on-street parking, the ready availability of high frequency transit that serves regional travel needs, last-mile services connecting to transit, and coordinated education and outreach services to teach people how to use alternatives to driving alone.

Some of the major challenges associated with improving access to transit include:

1) Converting wide, higher speed arterials into complete streets that will work effectively in a TOD can be controversial. A big part of the challenge is developing consensus with public agencies, developers and the community to find solutions and compromises.

2) The outdated method of proving warrants through the Manual of Uniform Traffic Control Devices (MUTCD) can inhibit the re-design of uncontrolled intersections to create controlled pedestrian crossing points providing direct access to stations and transit stops. These warrants generally require a large volume of pedestrians to cross at uncontrolled intersections or at mid-blocks (generally 20 pedestrians per hour) even when the crossings are very dangerous. In most urban areas, the volumes can be justified. However, in other areas with low levels of street activity, it is often difficult to meet the volume threshold. However, city traffic engineers have always had the authority to use local judgment in place of MUTCD warrants, which should be viewed as guidelines, and not absolute requirements.

3) Signals and pedestrian restrictions along major arterials can dramatically increase the length of time for vehicles to access transit areas. Many intersections include third and fourth leg intersection restrictions on crossings to better accommodate left turning motions, adding a significant length of time to crossings. In addition, traffic signals that do not allow for an early pedestrian start or that do not allow for pedestrian activation in the signal cycles, can add to pedestrian trip length. Remedies include the installation of pedestrian refuge islands in the middle of wide intersections and routing heavier traffic movements around the pedestrian access zones to transit in order to give pedestrians priority access and signal timing protection in these key areas.

4) High-speed arterials with large cross sections, wide lanes and open and unimpeded driving corridors are often unsafe and uncomfortable for pedestrians. The number of pedestrian injuries and fatalities that occurs on walkways on these larger arterials is significant, creating safety concerns about walking as a form of transportation. Improvements, such as traffic calming, speed reductions, lane diets, bulb-outs, high-
profile crosswalk markings, parkway trees, improved street lighting and buffers between walkways and moving traffic require funding and sometimes face opposition due to perceived interference with quick and easy access to local businesses. The maintenance costs associated with an enhanced walking environment are often not easily identifiable or do not rise to the level of funding priority given other life and safety programs administered by a local municipality.

5) The loss of travel lanes or parking spaces or a perception that limited use does not justify investments in special facilities can often lead to public opposition to the addition of bike lanes and other buffered or protected bike facilities. Educating all roadway users about the rules of the road for bicyclists and drivers alike and the potential benefits of shared facilities can contribute. For example a 2013 study by Active Living Research showed that each additional mile of bike lane added per square mile resulted in a one percent increase in bicycle travel. A study of Seattle found that adults who lived within a half mile of a bicycle path were 20 percent more likely to bicycle at least once per week.²

6) The lack of secure bicycle parking at the transit stop or employment destination is a major deterrent to riding a bike, even though travel distance may be fairly short.

7) Local business owners or institutions may oppose the use of parking spaces or walkway spaces for bike parking facilities or bikeshare programs. However, data show bike share programs and bike parking areas should actually help the business and that a relatively small amount of space can accommodate adequate bike parking (generally twelve bike rack parking spaces or four bike lockers in one car space).

8) Many street configurations and major transportation facilities such as freeways, rail lines, limited access highways and major high-speed / high-volume arterials act as barriers for pedestrian lateral movements and parallel or lateral cycling movements. Often, the only solution is to either walk or ride a great distance out of direction or invest very large amounts of public money on grade-separated crossings. New development or major reinvestments in infrastructure can correct these problems, but funding sources are often inadequate. Local walkway gaps can often be filled in, but major canyons, slopes and open space areas are not easily resolved.

Examples of Travel Options, Mobility Management and Access Improvements

Three examples are provided below. These include the Mountain View (in the Bay Area) strategy for trip management and “last mile” connections; examples of Transportation Management Associations; and examples of integrated transit facilities.

City of Mountain View

In response to strong employment growth in Silicon Valley, the City of Mountain View has developed a mobility strategy for the management of vehicle trips and the provision of “last mile” connections. In partnership with companies such as Google, LinkedIn and Intuit (all based in Mountain View), the City’s strategy emphasizes the creation of walkable, higher density development combined with programs and infrastructure to support mode shifts. These efforts are designed to convert traditional, suburban office parks (such as Google’s home in the North Bayshore area) into sustainable TODs.

---

² Dill, Jennifer, PhD, Susan L. Handy, PhD, John Pucher, PhD, “How to Increase Bicycle Travel for Daily Travel,” Active Living Research Brief (May 2013), http://activelivingresearch.org/how-increase-bicycling-daily-travel
The North Bayshore plan has evolved in large measure due to the commute strategies pioneered by companies in Mountain View, especially Google. As a rapidly growing company in recent years, Google has needed to attract top professional talent. The company developed a substantial commute program to aid that effort and also allow them to remain and grow in Mountain View. The program included commuter buses from San Francisco and other attractive communities where employees live. The buses also increase employee productivity and have allowed Google to increase on-site employee density without adding parking. Google’s commute program includes campus bicycles and paths and other bicycle incentive programs. Collectively, these efforts have reduced Google’s auto mode share to less than 50 percent among employees.

Following Google’s lead, other North Bayshore companies have expanded their commute programs and these efforts have been integrated into the City’s strategy for the North Bayshore. Elements of this strategy include:

- The recently adopted Precise Plan for North Bayshore, which will support an increase in employment of 10-15,000 jobs and create a walkable, mixed-use core. New commute trips by single-occupant vehicles would be limited and few vehicle infrastructure improvements are included in the plan. The plan emphasizes bicycle commuting, shuttle connections to the Caltrain commuter rail station and continued reliance on commute buses operated by Google and other companies.

Aggressive mode share targets are established in the plan, calling for no more than 45 percent of commute trips in single-occupant vehicles. Plans for employment growth must be accompanied by high-level TDM programs, enforced by a cap on vehicle trips entering the district in the morning peak period.

To support these mode shifts, the plan includes development of an extensive cycle track network and dedicated bus lanes and loading areas. Nearly all the infrastructure improvements are dedicated to mode shift strategies that will create a highly walkable and bike-able district. Companies and developers are also required to participate in the newly established Mountain View Transportation Management Association (TMA) that will operate shuttles to the rail stations and other programs to help achieve the mode share targets.

- Supporting the North Bayshore Precise Plan is an innovative plan for the “last mile” connection to North Bayshore from the Caltrain and light rail stations in downtown Mountain View. The downtown, itself a mixed-use TOD, is located about two miles from North Bayshore along the Shoreline Boulevard corridor. The mobility plan emphasizes bicycle trips and increased shuttle bus connections, each mode serving 2-3,000 trips in the peak commute period.
Infrastructure to support the plan includes over two miles of protected bicycle lanes (cycle tracks) and a 0.5-mile reversible, median transit lane along Shoreline Boulevard. These improvements are funded primarily through developer contributions and an existing North Bayshore infrastructure financing district (IFD). Improvements to the downtown transit center (which includes the rail stations) would provide a hub for the mobility options, including an expanded shuttle bus loading area, bicycle parking and a Bay Area Bike Share pod. Provisions for expanded car sharing are also included. A key to this strategy is the Mountain View TMA and their plans for high-frequency, coordinated shuttle service, making use of the planned transit lane and Transit Center improvements.
Transportation Management Associations

Large-scale TODs can usually rely on a network of public transit services that provides both long distance and connecting feeder service. However, for smaller and medium sized districts, it is often not efficient or cost-effective to provide a high level of public transit service.

Fortunately, the creation of TMAs has emerged as an effective strategy for many districts, both employment based and mixed use. TMAs can take a variety of forms, some as private non-profits formed by local property owners and businesses, others as public-private ventures. In the past, when they were required by law, TMAs were more prevalent in the San Diego region. While TMAs all focus on mobility options, particularly commute travel alternatives, their emphasis and size varies. Some primarily provide information and coordinate public services, while others directly provide service such as “last mile” shuttles.

The TMA option can be a key to the sustained success of transit-oriented districts by providing a local resource, with involvement from important property owners and businesses that can develop and operate tailored programs for the district. The table below highlights examples of several successful TMAs that can serve as models.

<table>
<thead>
<tr>
<th>Agency / TMA</th>
<th>Program Elements</th>
<th>Budget / Funding Sources</th>
<th>Public Sector Role</th>
<th>Key Considerations and Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emery Go Round, Emeryville</td>
<td>Transit service connecting to main transit stations; 7 routes; 6,000 daily riders</td>
<td>$10 million annual budget; funding from business improvement district</td>
<td>City provided seed funds and grants to initiate transit service; 400 established to continue program</td>
<td>Serves residential areas that do not contribute funding; some smaller property owners challenging (up for renewal in 2016)</td>
</tr>
<tr>
<td>Anaheim Transportation Network</td>
<td>Transit service connecting to Transportation Center (Rail Station); 16 routes; 67,000 daily riders</td>
<td>$10 million annual budget; funded from hotel occupancy tax, fares, and grants</td>
<td>City of Anaheim is a member and sits on the Board of Directors</td>
<td>Primarily focused on tourist market; considering implementation of structure line</td>
</tr>
<tr>
<td>Lloyd District, Portland</td>
<td>Advocacy for bike and transit programs; develops bike facilities; parking agreements among companies</td>
<td>$500,000 annual budget; funding from business improvement district; parking fund grants</td>
<td>City of Portland provided seed funding from parking meter revenue; 400 established in 2000</td>
<td>District has high level of transit service (light rail and structured)</td>
</tr>
<tr>
<td>Mountain View Transportation Management Association</td>
<td>Provide “last mile” shuttle connection to Caltrain and light rail stations</td>
<td>Funded by member companies; initial operating budget for shuttle is about $1 million.</td>
<td>City of Mountain View is a member and sits on the Board of Directors</td>
<td>TMA plays a key role in helping members companies achieve mode share and vehicle trip targets</td>
</tr>
<tr>
<td>Stanford University</td>
<td>Transit service (Mariposite) connecting to Caltrain; 54 routes; 37 peak vehicles; 6,000 daily riders; operates other commute programs</td>
<td>Budget not available (possibly around $5 million); funded by Stanford with Caltrain shuttle grants</td>
<td>Program is in response to transit limit established by County through General Use Permit; City of Palo Alto involved through stakeholder committee</td>
<td>Expended residential development has helped reduce trips; single agency facilitates revenue commitment</td>
</tr>
<tr>
<td>Peninsula Traffic Congestion Relief Alliance, San Mateo County</td>
<td>Manages Caltrain shuttle program in San Mateo County; 19 routes; with 24 weekly operators, other commute alternatives programs</td>
<td>$1.1 million annual budget; funding from Sales Tax shuttle program and other grants, employer contributions</td>
<td>Established as a Joint Powers Agency with members including San Mateo County and 37 cities in the county</td>
<td>No direct employer involvement; limited program success other than shuttles</td>
</tr>
</tbody>
</table>

Transit-Oriented District Facilities

Mobility options at the transit stations that form the heart of TODs comprise a number of physical facilities, including bus transit centers, bicycle parking/storage, bike share pods, car-sharing facilities, information kiosks and...
commuter parking. In many cases, these facilities are located on surface lots and take up substantial space near the transit station, the most desirable location for higher density, transit-focused development.

An alternative, when the option is available, is to integrate most or all of these facilities into adjacent new development. Properly designed, such facilities can provide a quality environment for transit users and also add value to the development. Two examples are provided below:

**University Towne Centre (UTC)**

The City of San Diego approved a master plan for UTC redevelopment a few years ago. Although delayed by the economic downturn, the plan includes a large transit center, fully integrated with the UTC development. The expanded transit center (from six to eleven bus bays) project reserves right-of-way along its frontage with Genesee Avenue for the Mid-Coast Trolley Extension Project that will bring light rail transit through the University City area of San Diego.

**Denver Union Station**

The redevelopment of the area surrounding Denver Union Station is a multi-year effort to transform former rail yards into a transit-oriented, mixed-use community. Developed through a public-private venture, the project was centered on several transit facilities that were created or redeveloped. These include renovation of Union Station, new light rail, commuter rail, Amtrak and MallRide stations and creation of a new bus facility, all integrated into the development fabric. According to the General Development Plan, the primary development area is more than 2 million square feet, including a million square feet of commercial space (office, retail and hotel), 210 residential units, and 800,000 square feet of parking. The project’s secondary area includes 1.3 million in commercial uses and 900,000 square feet of parking. The commercial mix features a boutique hotel and fourteen restaurants and vendors that draw primarily from local brands.

Now open, the Regional Bus Facility is located underground under the new 17th Street right-of-way between the light rail platforms and the historic station. The bus facility includes twenty-two bays; sixteen for Denver Regional Transportation District (RTD) regional and express buses, four for the Downtown Circulator and two available for other commercial carriers or new services.
Removing Connection Barriers: Ideas for Discussion

The “Ideas for Consideration” are provided as a starting point for developing recommendations as part of SANDAG’s Regional TOD Strategy. The “Ideas for Consideration” will continue to be refined, added to, and further evaluated.

1) Consider requiring applicable grants and funding of projects that relate primarily to increases in vehicular throughput to consider Complete Streets solutions to balance movement among pedestrians, cyclists, transit, and vehicles. Increase grant funding specifically for Complete Streets plans and investments that link to transit stations.

2) Build on the upcoming Regional Mobility Hubs Implementation Plan framework to organize and leverage the impacts of transportation, land use and placemaking investments, and quantify the mobility, social, and economic value for communities that local jurisdictions could then use to evaluate cost/benefit and develop value-capture strategies.

3) Prepare development checklists to assist local governments in evaluating development proposals around mobility hubs and establishing a consistent understanding of mobility hub principles and desired uses and features.

4) Identify opportunities for fixed physical locations or transfer hubs that enable travelers to connect more easily with carpooling, dynamic ridesharing, and instant ridesharing. Designated hub areas may support employer-provided shuttles, as well as parking spaces for park and ride and instant ridesharing users.

5) Promote instant ridesharing applications (Avego, ZimRide, Goose Networks, Carticipate, Piggyback, NuRide, and Google RideFinder) allow users to arrange one-time rides within minutes of the start of the trip, adding flexibility to traditional carpooling approaches. Partners could also conducted targeted marketing toward affinity groups likely to use the service. The Contra Costa Transportation Authority, Sonoma County Transportation Authority, and the Transportation Authority of Marin have participated in a joint pilot project to promote dynamic carsharing.

6) Evaluate how forming public-private partnerships to develop expanded mobility options, such as employer-provided shuttles that could bridge the gap in connectivity to transit, and account for use of these services in trip-generation rates and parking requirements.

6) Consider active transportation priority districts that correlate with TODs. These locations would replace strict adherence with vehicular centered policies such as the use of typical criteria for installing signals at intersections or the application of vehicular levels of service with projects that prioritize the safety, convenience, and connectivity of pedestrians and cyclists.

7) Future funding programs could include as eligible activities mobility management and access improvements critical to TODs. Funding should not be limited to traditional transportation improvements but should also include enhancing all public spaces and creating place-making opportunities that support a walkable and bikeable community and leverage public and private investments.

8) Give priority funding in the Regional Transportation Plan to active transportation that connects to transit, such as an expanded Safe Routes to Transit program.

9) Prepare defensible template policies and model ordinances to transition existing parking districts into mobility districts, and to create new ones in selected TODs.
References

Walk and Bike References


2) Garrett-Peltier, Heidi. Pedestrian and Bicycles Infrastructure: A National Study of Employment Impacts. PERI, Political Economy Research Institute, University of Massachusetts, June 2011.


4) SANDAG. First and Last Mile Solutions for Transit Centers, October 2011.


9) Dill, Jennifer, PhD, Susan L. Handy, PhD, John Pucher, PhD. “How to Increase Bicycle Travel for Daily Travel.” Active Living Research Brief, May 2013. http://activelivingresearch.org/how-increase-bicycling-daily-travel


Mobility Hub References

1) Metro / SCAG. First and Last Mile Strategic Plan, October 2013.

2) Velo-City / MetroLinx. Mobility Hubs - Foundation for Enhancing the First & Last Mile Experience, 2012.


8) Broward County MPO. Turning Mobility Hubs into Livable Centers, Not Dated.


Complete Streets and Complete Community References


3) APA California and Walk San Diego. From Policy to Pavement, Implementing Complete Streets in the San Diego Region, June 2012.

Trip Reduction / Parking Reduction References


Benefits to Transportation from TODs References


REGIONAL TOD STRATEGY


**Importance of Destinations and TODs References**


**General TOD References**


5) Center for Transit Oriented Development. *Station Area Planning*, No Date.


