



# transportation PLANNING

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## From the Chair...

by Whit Blanton, AICP

To paraphrase the President in the annual State of the Union speech, the state of our division is strong (fortunately, we are not at war in Iraq, fighting with Congress to change Social Security or facing huge deficits). Still, it's a good time to reflect, because the Transportation Planning Division is transitioning to new leadership, having successfully completed an election organized by division members Sara Forelle, AICP, and Noel Comeaux, AICP. It is the efforts of volunteer members like Sara and Noel – and many others – who keep the division going strong, and make it worthwhile and productive for all members.

Nearly five years ago I was elected chair of this division, following six years of serving as the newsletter editor. It is hard to believe 11 years have passed since I became active in APA and the TPD. Both the division and the profession have changed a lot over those years, each benefiting from new ideas, alternative approaches and a growing, diverse body of professionals as members. As a division we have achieved plenty in the last five years, but important challenges and opportunities remain.

We have worked hard to build up the transportation planning offerings at APA conferences in the last five years. Our by-right sessions organized by Vice Chairs Richard Willson and Larry Lennon have been excellent and well-attended, and we have successfully achieved a transportation theme track and integrated transportation into other themes. We have generally obtained more than our standard two sessions by being creative with volunteer proposals and partnering with other divisions.

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## Developing TOD Parking Strategies

By John Boroski, Jennifer Rosales and GB Arrington

Parking is at the core of TOD performance. The first generation of TOD development focused on getting TODs built. The next generation needs to focus on realizing TOD performance. Parking is a critical issue in the performance of TOD from both a transportation and financial perspective.

This article provides information to local jurisdictions, transit agencies, developers, financial institutions, and others as they develop parking standards and programs for transit-oriented developments (TODs). TOD is defined as:

*"...moderate to higher density development, located within an easy walk of a major transit stop, generally with a mix of residential, employment, and shopping opportunities designed for pedestrians without excluding the auto. TOD can be new construction or redevelopment of one or more buildings whose design and orientation facilitate transit use."*

By increasing transit accessibility and combining a mixture of land uses, TOD offers significant opportunities to reduce the number of parking spaces below conventional parking requirements for retail, office and residential land uses. Many local governments clearly understand that in practice TODs should have less parking than conventional development. A combination of factors, including local codes, the lack of definitive information on the performance characteristics of TOD in terms of parking and traffic, and lending practices, combine to make TODs look much more like conventional development in terms of parking than may be warranted.

At the same time, increased densities in TODs, coupled with the goal of improving pedestrian accessibility to transit stations, often requires building structured parking garages. Parking spaces in structures can cost from \$10,000 to \$25,000 each, compared to about \$5,000 per space for surface parking. These increased costs can negatively affect the financial feasibility of projects, even if they are otherwise profitable. Thus, if the design and location of TODs can enable a reduction in the number of parking spaces needed, the cost savings can be significant. The amount and pricing of parking has been consistently shown to have a clear impact on transit use.

*see "TOD", page 2*



## Transportation Planning Division Business Meeting and Reception

# Come Join Us!

**What:** TPD Business Meeting followed by joint TPD/ Intergovernmental Divisions reception

**When:** Monday, March 21, 2005, 6:00 PM - 8:30 PM  
Reception begins at 7:00 PM

**Where:** Nob Hill B & C of the San Francisco Marriott

In the unlikely event that the meeting room should change, please consult the final program that will be distributed in San Francisco.

contact us...

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### Why Reduce Parking?

Reduced parking requirements can lower TOD construction costs, which in turn can result in improved financial performance of projects, more affordable housing, and/or allow more development to be built on sites near transit. In addition, reduced parking requirements can:

- Reduce residential parking rates (by changing long-term travel behavior and car ownership patterns)
- Reduce office/commercial rents
- Lessen urban water runoff
- Increase taxable square footage or other community amenities
- Improve local traffic circulation
- Improve urban design, and
- Generate congestion management credits for businesses (where applicable).

### How Much Can Parking be Reduced?

In his research on numerous TODs in California, Dr. Robert Cervero found that TODs had an average of 1.66 people and 1.26 vehicles per household, compared to 2.4 people and 1.64 vehicles for all households located in the same census tracts. Cervero also found that:

- Most TOD residents are young professionals, singles, retirees, childless households, and immigrants from foreign countries.
- These groups tend to require less housing space than traditional “nuclear families”, and are more likely to live in attached housing units for financial and convenience reasons, regardless of where the units are located.
- Most TOD residents tend to work downtown and in other locations that are well served by transit.

Thus, TODs offer the potential to reduce parking per household, roughly by 20%, largely by virtue of attracting different types of households and travel behavior characteristics.

In research conducted for CALTRANS, a wide range of parking reductions (from 12% to 60%) was also found for commercial parking in TODs. Commercial parking demand, however, is generally more complex than residential parking and is affected by numerous factors, including: employee demographics, retail sales volumes, employee densities, types of adjacent land uses, etc. Therefore, there are no clear conclusions regarding how much parking can be reduced overall for TODs, and parking needs should still be estimated on a site-by-site basis.

### How They Do It

Many cities that build TODs reduce parking requirements to reflect the availability and proximity to transit. Parking can be reduced further, however, when the following tools are used:

**Shared parking:** Shared parking is publicly and/or privately-owned parking that is used by two or more separate land uses without conflict. The success of shared parking depends on the specific uses on the site and the interaction of uses. In particular, shared parking works best when adjacent land uses have different peak activity periods (e.g., an office building and cinema).

**District parking:** District parking is a large-scale application of shared parking, and is usually implemented in urban commercial and retail areas using multiple parking facilities. District parking can be particularly beneficial to new development, as it can reduce the marginal costs of new construction. Many districts allow developers to contribute cash in lieu of providing parking themselves.

**Satellite parking:** This strategy has single employers, groups of employers, or a transportation management association (TMA) providing dedicated off-site parking for employees, which is then served by specialized transportation (e.g., direct shuttle van service) or public transportation. This replaces expensive on-site parking with lower cost off-site parking, and is primarily a means to manage on-site supply and demand.

**Carpool parking:** With this strategy, employers or TMAs convert a significant share of preferentially located single occupant vehicle (SOV) parking to preferentially-priced high

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What once was a source of frustration for the division has blossomed into a better challenge of having to decide which of many insightful transportation sessions and mobile workshops to attend.

The TPD has become the “go to” resource for APA and other organizations seeking input on a variety of transportation planning issues. Whether it is dealing with Reauthorization, Smart Growth, Airports or Tribal Transportation issues, the division has capably responded to outside requests for our members’ expertise and energy. We have built a high level of respect for our work program and responsiveness from within APA and affiliated organizations like the USDOT, the National Governors Association and others.

With the understanding that planners are uniquely trained to think comprehensively and integrate various specialties, TPD has made great strides to collaborate with other APA divisions to break down the “stovepipe” mentality that too often pervades the planning profession. Transportation is multi-faceted, and we need to continue working hard to understand the social, environmental, economic and design issues that influence our mobility needs and create truly outstanding communities. We have developed good partnerships with several APA divisions over the years to explore the inter-relationships and engage in a dialogue. Those efforts must continue.

In that spirit, our Airports-in-the-Region initiative is a groundbreaking effort for the TPD and the APA Divisions Council to study a particular facet of our world and develop multi-disciplinary guidance for planners and other stakeholders. Thanks to the ideas and initiation of Larry Fabian, and efforts of Dan Wong, Mark Johnson and Mike Callahan, among others, the concept of planning for an airfront district and guiding the ongoing airport-land use compatibility discussion is taking off and producing results.

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occupancy vehicle (HOV) parking. The effectiveness of this strategy will be greater in regions with a robust system of HOV lanes.

**Transit pass programs:** One of the best times to affect travel behavior is when there is a change in home or job location. New TOD offers a good opportunity to implement transit pass programs to attract residents and workers to transit (and transit passes are tax-deductible for employers and tax-free for employees).

**Unbundling housing and parking:** Housing and parking can be unbundled and sold through separate markets. In this case, vehicles are parked off the street in parking garages independent of housing units, creating a direct incentive to reduce car ownership and use.

**Car sharing:** This is an alternative to owning a personal car for people who do not need to drive often. Car sharing groups (i.e., TODs) give car sharing members access to a car on a reservation basis, and members only pay for the time and miles they drive.

**Mechanized parking:** This technology can be used to vertically stack up to three cars in a space roughly equivalent to one level of parking, effectively creating structured parking where none existed. Because the lift (which holds multiple cars) must drop into a below-grade “pit” to bring the topmost car to ground level, mechanized parking can only be used for small to mid-sized projects with one “level” of parking.

**The Capital Beltway TOD Parking Experience**

A new generation of TOD projects is being created along existing Metrorail lines in suburban Washington, DC. The West Hyattsville TOD strategy provides a good case study. Prepared for the Maryland Department of Transportation (MDOT), the West Hyattsville TOD strategy resulted from numerous meetings and design charrettes held with representatives from Prince George’s County, the Washington Metropolitan Area Transit Authority, the City of Hyattsville and the Maryland Office of Smart Growth. The TOD parking strategy for West Hyattsville could result in parking reductions of as much as 25% from current county standards. A similar effort was recently completed for the New Carrollton TOD and a Prince George’s County Regional TOD Strategy to attract and guide quality development to the County’s 15 Metrorail stations.

**West Hyattsville TOD**

The West Hyattsville TOD is envisioned to be Prince George’s County Maryland’s first compact, mixed-use, quality ‘transit village’ development. Located around an existing underutilized Green Line Metrorail station, the transit village concept provides a diversity of opportunities to live, work, shop and play in a low-rise (2-6 story) community that features:

- 3,600 residential units - offering several housing choices;
- 1,000,000 square feet of office / commercial space - creating 4,000 jobs;
- An extensive system of civic, park and open spaces; and
- A finely balanced street and circulation network – maximizing both the accessibility of the site’s features to one another and the site’s relationship to transit.

Minimizing the amount of parking, especially structured parking, is critical to this overall West Hyattsville TOD strategy’s realization, particularly during the early phases. A comprehensive parking management program is proposed and could reduce parking demand by as much as 25 percent from current county standards.

The three key features of this program are:

1. Reduce parking requirements to reflect:
  - Increased transit use. A significant percentage of new residents are expected to work in downtown Washington, D.C. and at other locations (university or federal office campuses) that are accessible by Metrorail. Office workers and shoppers will also be able to take transit to this site.
  - Reduced vehicle use. Residents and commuters to the site will live and work close enough to a variety of uses to be able to walk, bike or use transit to satisfy many of their daily needs, thus reducing auto use and demand for vehicle ownership.
  - Shared parking.

*see “TOD”, page 5*

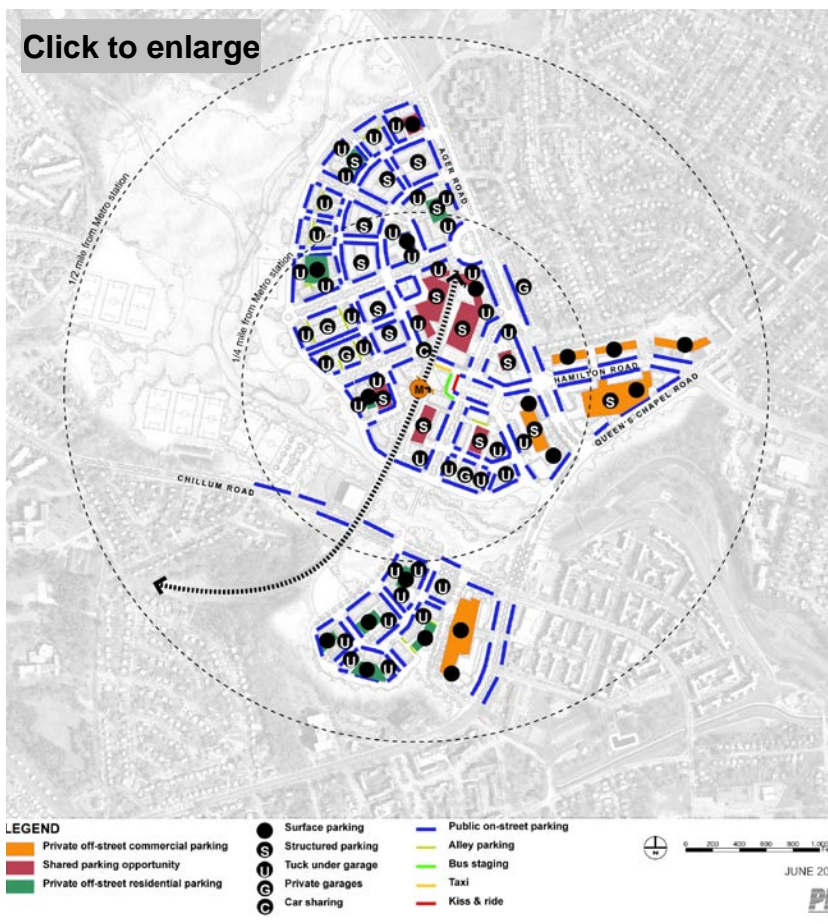
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2. Reduce off-street parking by crediting adjacent on-street parking towards fulfilling on-site parking requirements. This strategy makes on-street parking critical to meeting both parking supply and urban design goals (such as calming traffic).

3. Establish a station area-wide parking entity to integrate and manage all parking recommended by the TOD strategy. The entity's responsibilities could include:

- Ensuring that each phase of development takes advantage of underutilized, excess parking in the station area. Excess parking could be used by adjacent new development, could be leased by other users or could be additional commuter parking.
- Enforcing a residential permit program.
- Establishing a parking meter program to regulate on-street commercial parking.
- Allocating parking revenues to ensure that the parking management program is successful.
- Administering a transit pass program for station area residents.
- Executing "car-sharing" agreements with providers, and reserving spaces for "car-sharing" vehicles.
- Coordinate a transit shuttle bus service linking the station area to nearby neighborhoods.

The parking strategy concept for the West Hyattsville TOD is shown below.



As shown in the figure, the complete range of parking configurations includes:

- Parking structures,
- Tuck under,
- Private garages,
- Car sharing (flex car) spaces,
- Alley spaces,
- Well-designed off street surface lots, and
- On-street spaces.

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The TPD Student Paper Competition is another success that has continued for many years with different leaders. The dedication of our volunteer paper reviewers, and generally outstanding papers submitted by students and their planning programs, make this a great way for APA to promote education and nurture a relationship with the academic planning community. Kudos to our chair, Ruth Steiner, and committee members Kate Garwood, Robert Bush, Karen Lamberton and Mary Kihl, for their enthusiastic time commitment.

Our communications, in the form of the regular newsletter, website and member survey taken earlier this year, have strengthened the division. We are fortunate to have Ruth Fitzgerald as newsletter editor. She has a passion and commitment to the profession, which is reflected in her efforts. Her staff members, particularly Howard Latimer, who assists with newsletter production, and Ken Livingston, who implemented our member survey, are top-notch people who know how to get things done. My colleague, Glen Duke, has been a responsive web manager for five years. That job will now transition to a new person, a transportation planner and TPD member, who will have the responsibility of keeping the web content fresh and dynamic.

Our continuing challenge is to engage more of you to participate in the affairs of the division, whether it involves writing an article for the newsletter, coming to a division business meeting or reception, or posting and responding to a query on the listserv. Our planned mentoring program still needs to get off the ground. There is much work to do on our practitioner-focused education efforts. The opportunities abound. There's always more we as leaders of the division can do, but one good idea and a few hours time from a volunteer can go a long, long way to getting something good accomplished. Please get involved. You'll be glad you did.

Thanks to all who have joined the division, read the newsletter, attended

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a reception or conference session, or posted to the listserv. Most of all, thanks to the members of the Executive Committee, particularly Joe Marking, who as treasurer, mentor and confidant over the last 10 years has helped me immeasurably. You all make this worthwhile, and my hat's off to you. It's been fun.

**May 20th is Bike to Work Day**

The toughest thing about my weekly bike to work is coming home after a long day around 6 PM or so, when the air is cool and windows are open, and the tantalizing scent of home cooking wafts out to the street. I guess it's not so bad, but it does make my stomach growl and my feet pedal faster toward home. Being a flatlander here in Florida, I know that I have it relatively easy over my fellow bike commuters who live in more hilly or inclement climates. I am also fortunate to have pretty good facilities for most of my ride.

In the spirit of putting people first in our transportation plans, all of the month of May is Bike to Work Month, and Friday, May 20th is Bike to Work Day ([www.bikemonth.com](http://www.bikemonth.com)). Bicycling is a great solution to many of our current challenges – public health, air pollution, traffic congestion and sprawl development. Promotions like Bike to Work Day help make bicycling and bicyclists more visible and accepted on our roadways, where too often there are conflicts and crashes with motorists. Unfortunately, many of our streets and communities are not friendly for bicycle riding or commuting. That needs to change. Where cycling is embraced and supported, communities benefit economically and socially.

So I challenge you to bike to work on May 20th, or at least sometime during the month of May. We have 1,500 TPD members; we ought to be able to get 10 percent of us to ride to work one day. That's 150 people for all of you with journalism degrees. I think we can do it. How about it?

*TOD, continued from page 5*

Prince George's County's existing parking requirements were used as a baseline for reducing the parking proposed in the new TOD Parking standards for the West Hyattsville TOD. New TOD parking standards were set for the West Hyattsville TOD. The West Hyattsville parking strategy relied on three types of structured parking to supply the parking required by the proposed TOD plan. The plan alters the existing parking standards by converting minimums to maximums.

The West Hyattsville TOD Parking Strategy recommends using a distance based parking strategy (within a quarter of mile and outside a quarter of a mile) with incentives for car sharing. For example, the parking requirements for residential parking where transit passes are provided are reduced by five percent. As "car sharing" contracts are included, the residential parking requirements would be reduced by another 5 percent. In addition, an on-street parking credit adjacent to a specific block will be used to reduce off-street parking requirements for that block.

Implementing the recommended TOD Parking Standards will reduce required parking, compared to the Prince George's County code for non-TDOZ by approximately 22 percent.

**TOD Trip and Parking Calculator**

As described in this article, mixed-use development and proximity to transit affect travel mode choices and reduce the number of vehicle trips generated by a development. Thus, a mixed-use TOD has a significant amount of vehicle trip reduction impacting the amount of parking required.

**Transit Effects on Travel Behavior**

Significant evidence in past research shows that travel changes are associated with TODs at a macro scale. TODs can result in up to a 25 to 30 percent decrease in vehicle miles traveled (VMT) per household near major transit stations, while the number of individual station-area boardings could increase by more than 50 percent (compared to non-TOD neighborhoods). More specific research will be necessary to determine the quantifiable impact of TODs on travel at the local level.

The types and mix of land uses influence the demand for transit as well as non-motorized modes, such as walking and bicycling. In addition, residents of higher density residential areas are more likely to walk to transit. The *ITE Trip Generation Handbook* presents information on the effects of transit on trip generation and includes transportation impact factors for developments around bus transit corridors and light rail stations.

**Mixed-Use Effects on Travel Behavior**

Ongoing research shows that land use density, diversity, design, and distribution of destinations have a relationship with travel behavior and are an important factor in reducing automobile use. When several activities are available in a mixed use development, the average trip distance decreases and more people are inclined to use other modes of travel such as walking or biking for shorter trips. In addition, increased density provides an increase in potential transit riders.

Mixed-use influences travel demand in many ways, but the most significant impact has been found to be on mode choice. Studies conducted in Florida show that mixed-use developments ranged for internal capture rates with a mean internal capture rate of 24.6 percent. The study found that simply mixing uses does not ensure internal capture, but diversity and density played an important role. In addition, density was found to be particularly important for smaller mixed-use developments in these studies.

The *ITE Trip Generation Handbook* presents a chapter on multi-use development with internal capture rates and a methodology for estimating multi-use trip generation. The handbook states that "the internal capture rates should increase with an increase in proximity, density and number of complementary land uses within a multi-use development."

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## **TOD Demand “Calculator”**

To estimate the vehicle trips associated with a TODs and parking demand, PB PlaceMaking has been developing quantitative tools to better estimate TOD parking demand and vehicle trips. For projects in the Capital Beltway area and California, a TOD trip calculator has been developed which uses the land use mix (diversity and amount of each land use type) of the TOD, density of the TOD, proximity to transit, and type of available transit service as inputs into the TOD trip calculator. The traditional ITE trip generation is estimated by the calculator, and reduction trip factors related to density thresholds, mixed-use development (amount and type of each land use results in different reduction factors per land use type and location), and proximity to bus or rail transit are applied in the TOD trip calculator.

This calculator has been used to estimate the number of trips anticipated for proposed TODs, number of trips expected to be reduced by the TOD, and the resulting parking demand associated with the TOD. It has been found to be useful for land use and transportation planning of TODs and for developing TOD project strategies.

## **Conclusions**

Getting the parking right is at the core of capturing the benefits of TOD. In establishing parking codes, jurisdictions often simply use other localities’ parking codes or strategies, which often lead to parking problems. Furthermore, experience has shown that strict adherence to local parking codes or Institute of Transportation Engineers (ITE) parking data often creates oversupplies of parking in many places. The traditional parking data and parking codes are focused on individual land use developments without interaction between mixed uses and does not account for proximity to transit.

There is no single formula that should always be used to reduce parking in TODs. Parking needs for TODs can vary widely across locations, even within the same jurisdiction, and depends on many factors as described in this article. Thus, the general findings offered here should be tempered with additional research that accounts for local factors that affect parking demand, such as: the specific residential, office and commercial tenant mix; the density and diversity of land use; the quality of the local transit service; applicable trip reduction requirements and/or incentives; residential demographics; and site conditions (e.g., pedestrian circulation constraints, parking spillover potential).

New national research to advance state of the practice on TOD performance will be undertaken soon (TCRP H-27A). There is very little definitive information on the actual performance of TODs from either the traffic or a parking perspective. Therefore, over 100 TODs and 100 joint development projects have been identified for this research project. In the surveys conducted for TCRP H-27, the ability to reduce parking was one of the most common TOD incentives cities offer, yet cities also rated optional parking reductions as one their least effective incentives because it was rarely used by developers. The new research for TCRP H-27 will form the basis of new ITE and ULI guidance on parking ratios for TOD.

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*A list of references will be supplied by the authors upon request.*

## **HIGHER TRANSIT VISIONS FOR TOMORROW**

*by Lawrence J. Fabian*

In the 21<sup>st</sup> century, smarter new options for urban mobility and living are within our grasp. To take advantage of them, policy shifts that have sound bases in urban economics are required. Traffic and parking management, focused district maintenance, and density-friendly zoning and building codes can help decongest urban centers. Cell phones and the Internet create new ways to provide public transport. New forms of rail – called automated people movers (AP Ms) – are smarter and more flexible, and significantly more attractive to the public.

### **APMs: Metros, Airports, and More**

Some APMs are high-performance, driverless metros. Those who venture abroad know that mass transit plays a much larger role in Europe and Asia. Driverless metros in Paris, Singapore and Copenhagen, but also in Rennes, Toulouse, and Lille in France, provide impressively high levels of service. Others are underway in Brescia, Perugia, and Turin in Italy, and in Lausanne (Switzerland). In London the emerging Docklands high-rise district is intertwined with the flexibility of its high-performance “Light Railway”. Smart cable-drawn shuttles offer effective services in Laon (France), Oeiras (outside Lisbon), and a district of Milan. Personal Rapid Transit (PRT) promises even higher levels.

In the U.S., APMs are common at a smaller-than-metro scale at large airports – Atlanta, Chicago, Newark, Orlando, and San Francisco, to name a few. They now serve and help define airfront districts – e.g. JFK Corporate Square in Queens, NY – an 8-minute APM ride from JFK Airport. They have been used – with limited success – to improve downtown mobility in Detroit, Jacksonville, and Miami.

*see “Visions”, page 11*