South Bay Neighborhoods in 2025: A View from the Front Porch

This paper, like the 2015 General Assembly itself, is intended to stimulate a conversation among South Bay policy makers and institutions about collaborating to form and implement a unique South Bay vision of a neighborhood.

Everyone lives in a neighborhood. Everyone knows what is pleasing and displeasing about their neighborhood. Many have an appreciation for what their neighborhood was like in the past and how it is changing. Some think about what their neighborhood will be like in the future and how they can influence those changes. This paper is intended to stimulate discussion about neighborhoods in South Bay cities by 2025 and hopefully will begin a continuing conversation about how to use our neighborhood structure to achieve California's mobility and sustainability goals by 2025.

Neighborhood Strategy

It may be surprising that a neighborhood strategy can emerge from the study of travel behavior. However, that is exactly what the SBCCOG's 10 year program of transportation research and demonstration has concluded. Neighborhood development is the key to long run transportation sustainability, relief from street congestion and parking shortages, access to services, and potentially other priority concerns such as quality job growth, and work force housing. To succeed, the complete spectrum of South Bay institutions, from local governments to private businesses, will need to focus their policies on our cherished neighborhoods.

The South Bay is not alone in this conclusion. The City of Portland, Oregon, has adopted a neighborhood strategy. According to the Portland General Plan, 80% of its residents will live in "complete neighborhoods" by 2035. In Portland, a "complete neighborhood" is a place "where one has safe and convenient access to the goods and services needed in daily life. This includes a variety of housing options, grocery stores and other commercial services, quality public schools, public open spaces and recreational facilities, affordable active transportation options and civic amenities. An important element of a complete neighborhood is that it is built at a "walkable and bikeable human scale, and meets the needs of people of all ages and abilities."

"A 'center' is the key component of a complete neighborhood. Clustering destinations within compact, walkable centers makes access by transit, walking, wheelchair, and bicycle more practical and reduces the amount of driving needed to access services. Portland's policy calls for creating a citywide network of centers by 2035."

A network of robust neighborhood centers could be used by business and public institutions to enhance quality of life including, for example, public safety, access to senior services, health care, and education. The research and demonstrations completed by the SBCCOG over the last 10 years produced and tested our own unique neighborhood strategy based on the specific characteristics of the South Bay. View from the Porch offers a vision of the South Bay "Neighborhood Oriented Development" strategy.

Evolution of South Bay Neighborhoods

The current geographic pattern in the South Bay was initially established between 1890 and 1920 in the era when regional electric streetcar service was introduced into what was primarily an agricultural area. Development began to occur around the stations as the streetcar provided the only option to walking, cycling or the horse and buggy; and the only feasible access to transportation for going "downtown" to the regional center.

The first residential neighborhoods grew out of those small commercial centers around the streetcar stations and can be characterized as *transit oriented development*. The growing popularity of the private automobile led to development spreading to the areas between rail lines in a more typical suburban pattern. That pattern was based on the mile square grid of major arterials, not the linear pattern of the streetcars.

Gradually over time rail transit service shrank as it was replaced by roads and private vehicles. Pockets of commerce and industry developed outside of downtown Los Angeles and it was no longer the main destination. Essentially, rail transit was not particularly compatible with the suburban pattern that was emerging and couldn't compete with the private auto, which was.

The initial organization changed around mid-Century, with substantial growth after WWII. Most of the suburban South Bay as we know it today was built between 1948 and 1970 in a pattern that was consistent with private gasoline fueled automobiles – the mile square grid of arterials. Gas was cheap, cars were large, and destinations were located in low, sleek shopping malls and business parks or in commercial strips along the major arterials. Neighborhoods were developed in housing tracts within the grid. The South Bay became and remains auto-dependent.

The View from the Porch – 1965 - Today

The view from the porch 50 years ago in mid-Century South Bay was quite different from today. The view then included kids walking to school, neighborhood grocery stores nearby, independent mom and pop stores in every retail category, a single TV set that received 7 channels, rotary dial phones, more open space in the form of undeveloped lots and vestigial agriculture, single family housing under construction in

many new tracts, book stores, record shops, miniature golf courses with game arcades including pinball, drive-in movies and neighborhood movie houses showing Saturday afternoon matinees for kids, shiny new malls offering a cornucopia of material goods, and the newly opened Interstate 405 freeway (then the San Diego Freeway) improving regional mobility.

While the mid-century world helped to define what was "modern," it also had the infrastructure problems associated with fast growth – the tendency of many streets to flood during heavy rains and absence of sidewalks in some areas, to name just two. In general, density was lower, pace was slower, and the scale more manageable.

Gradual change continued for 25 years through the early 90s. The 25 years between 1965 and 1990 brought more construction that filled in the vacant spaces by developing the remaining green fields and agricultural properties, and replaced obsolete structures with new larger ones. The growing aerospace industry located in the South Bay and brought jobs and prosperity to many neighborhoods. More homes and jobs meant more people and more congestion.

As dramatic as that physical development was, the pace of change over the last 25 years has accelerated primarily due to the globally integrated, broadband digital Internet which was commercialized in 1990. The Internet has proven to be a "disruptive technology" with consequences still being experienced. Today we are in an age of disruptive technologies. Not just a single technology, but waves of them (see Page 10 for a few examples) that have the potential to define neighborhood life in 2025.

The world of 2025, ten years from now, will be as different as the 50 years between 1965 and 2015. This will be quite a ride and the opportunity to shape the outcomes has already begun.

Sustainable South Bay Neighborhoods in 2025

This vision of neighborhoods in 2025 is a synthesis of the South Bay Cities Council of Governments' sustainability strategy with the transformative potential of still emerging technologies. It is fictional, intended to advance the conversation about using neighborhoods as the basis for multi-jurisdictional efforts to retrofit the South Bay for continued prosperity and a sustainable quality of life in the face of 21st Century challenges.

The potential exists for the various elements to come together to produce greater mobility at less cost to the consumer and to the public sector; less congestion and more available parking, less pollution and fewer greenhouse gas emissions; more cost-effective service delivery for all institutions; greater convenience for access to

everything; and the rebirth of a neighborhood culture which strengthens the fabric of our various communities.

The description focusses on mobility, energy, technology and the built environment. Institutions and leaders representing other sectors are invited to similarly envision from their perspectives the role that neighborhoods can play in the South Bay of 2025.

The SBCCOG's innovative strategy breaks from the suburban past while maintaining a suburban life style. It includes innovations from both the private and public sectors. It attempts to fashion a set of initiatives that will adapt the existing infrastructure to future needs. This approach will avoid costs and minimize investing billions of tax dollars in extensive new rail infrastructure. It will not increase residential density otherwise required to make large transit investments feasible. The SBCCOG's neighborhood oriented development strategy reinvents the suburbs as opposed to urbanizing them.

View from Above

If you were able to hover over the South Bay in 2025, what would you see?

- People working at or closer to home with vast amounts of computing power and global network accessibility on their person or in their briefcase and virtually connected to family, friends, their work, doctors and their neighbors.
- A network of neighborhood centers, each with a mix of businesses including store front retail, business offices, some light manufacturing or product assembly. These centers are in the form of compact clusters of 2-story buildings forming a four corner physical center at each major intersection – with multiple businesses occupying very small spaces.
- People on the street especially around the centers. No household is more than ½ mile from a Center so people are coming and going all day long for a variety of reasons, mostly by walking.
- A new kind of public facility – called an Access Hub -- that provides physical access to the technologies that offer virtual access to other places such as community colleges, universities, medical clinics, etc. It is also offers access to a variety of mobility options for those that need transportation to other South Bay neighborhood centers or longer distance travel to other sub-regions.
- A variety of zero emission vehicles running at different speeds, some coming from the adjacent neighborhood and others heading to a nearby center.
- Parking for dozens of small vehicles, most spaces with 110v charging outlets; bicycle racks and parking for other pedal technologies.

- Gas stations retrofit to service fuel cell vehicles and provide vehicle maintenance as gasoline vehicles have declined in number.
- Homes, work and public places with electric charging stations for vehicles.
- High speed fiber networks underground that connect the Access Hubs to each other and to the Internet
- 80% of trips in each neighborhood go to the neighborhood center or to one of the 4 nearest centers that are one mile away.
- Arterials with special slow speed local lanes and full speed regional traffic lanes that address all travel needs.

View from the Porch

As residents sit on their porch, they will see four dimensions of change that collectively lead to what was described in the 2025 bird's eye view.

Mobility Options

There are options, so many options. In 2015 it seemed like there was really just one option for getting around – the personal automobile. Bicycling had grown in popularity, bus ridership had been flat for years, and people walked when they could but for the most part everyone drove.

In 2025 every resident has a lot more choices, beginning with whether or not to even own a private vehicle, or more than one per household. On-demand commercial ride sharing has become very competitive, keeping the rates low. There are several car-sharing services using a mix of models including round trip by the hour and one-way by the minute. There is even peer to peer car sharing as an option for those who do own a private vehicle but don't drive it all the time. This option helps offset the high cost of ownership for those who participate.

The community embrace of slow speed vehicles for local travel formed a second group of new options. Many slow speed options existed in 2015 but weren't used. The big change occurred in driver awareness of actual travel needs. We have all been acculturated to owning a full speed, full sized, gasoline fueled car so we didn't notice that a large majority of trips were less than 3 miles in length.

Dropping kids at school or seniors to the community center doesn't typically require a 6 person SUV. For the most part, smaller, slower vehicles for getting around the neighborhood and into adjacent neighborhoods or using some mix of a car and ride sharing services have satisfied about 2/3 of the trips that residents take.

A catalyst to this new consumer awareness was the state and local governments' initiatives for making existing streets available to all modes of travel. A number of small,

slow speed, zero emission vehicles had been invented and were being marketed in 2015 but were either illegal or lacked the protection from fast moving traffic that would have made the riders safe.

The Segway had almost disappeared because there were no consistent regulations for accommodating it on streets or sidewalks. Electric skateboards were on the market but not legal in California. Neighborhood electric vehicles were legal where the limit was less the 35MPH but the higher speed of passing traffic was a problem. An array of pedal technologies from bikes to quad-cycles similarly lacked the safety protections that eventually were implemented.

The combination of a new approach by state and local officials to sharing the road fed the growing consumer awareness of mobility options; increasing use of the options led to more generous management of the roadways.

Along with some innovative transit options offered through smaller vehicles operating with very short headways to connect the neighborhood centers to each other and to the regional backbone transit network, the collection of mobility options is saving South Bay residents over $1 billion annually compared to 2015.

Gasoline savings are of course one major source of savings, but reduced levels of car ownership also contribute (purchase/lease price, maintenance, insurance – estimated in 2015 to be almost $8,500 per year per vehicle including fuel). As a result South Bay residents have been able to eat out more often, purchase better furniture and clothes, save for retirement or for college tuition for their children, and so forth. The South Bay economy has become much more diversified and robust as a consequence of these mobility options.

Smaller, slower vehicles helped reduce congestion and parking problems since they simply don't require as much space as full sized or sport utility vehicles. Lower parking needs also help improve the financial feasibility of commercial and housing developments, especially significant when developing work force housing, the lack of which contributes to street congestion and parking demand.

Fuel Options

A less visible change over the past 10 years has been in the fuel used for private vehicles. A car pretty much looks like a car whether it is fueled by gasoline, electric batteries or electric fuel cells. But what a difference in operating costs. And what a difference in impacts on air quality and carbon emissions.

In 2025 almost every new vehicle purchased by South Bay residents uses some form of zero emission fuel. This market phenomenon has resulted in one significant visual

change – there are many fewer gasoline stations. Some have become hydrogen fueling stations, places for DC fast charging, and battery swap locations while others have been redeveloped into a part of a neighborhood center.

As with complete streets policies of state and local governments providing an incentive to slow speed vehicles and pedal technologies, state and local governments also played a role in this transition to zero emission electric vehicles. The state continued to subsidize the purchase of EVs and the local governments ensured an adequate number of electric vehicle charging stations in public parking areas. Cities adopted policies that encourage others such as employers, condo homeowners' associations, apartment owners, and commercial centers to deploy charging stations.

A trend that began as early as 2012 toward joint purchase of EVs and roof top solar accelerated. The idea really became popular to produce fuel on the roof top and fuel the private vehicle at home thereby cutting the cord to the gas lines and fluctuating prices.

And the transition came just in time. The extremely low gasoline prices experienced in early 2015 were short lived. Despite decreasing demand for gasoline, prices rest today in 2025 at historically high levels and threaten to go higher contradicting traditional market dynamics where lower demand brings down cost.

Access Hubs

Access Hub is a name given to a new public facility that has been included in every neighborhood center. Its name reflects the combination of two separate purposes -- a "network access center" and a "multi-modal mobility hub."

Neighborhood centers need to be functionally robust in order to effectively satisfy the needs of the adjacent residents. Centers at the neighborhood scale arelimited by their physical size and their small market area. No neighborhood can by itself support a robust mix of goods and services. For example, a medical plaza, university campus, and regional mall would not be economically feasible at the neighborhood scale.

The medium of virtual presence, also known as telepresence, has been how those economic limitations have been overcome. An Access Hub has been developed in every neighborhood center in order to import through telepresence some of those destinations that are needed but are not economically feasible in the neighborhood. Internet applications such as distance education, tele-medicine, and e-government have made the neighborhood centers more functionally robust as a complement to the bricks and mortar businesses in each center.

Because of the powerful technologies in the Access Hub, employers gradually began to allow some of their employees to work in shared suite situations one or two days a week. As a result, neighborhood centers have become places to shop, acquire services, and work for a substantial portion of the neighbors. Gasoline consumption and greenhouse gas emissions have dropped dramatically at a relatively low cost, improving home life as family members are staying closer to home more of the time.

The Access Hub also serves as a neighborhood demand-aggregator for various mobility services: a stopping spot for fixed route transit, a pick-up and drop-off spot for ride-sharing and van pooling, and a parking and charging spot for vehicles being driven there or left there for sharing. The Access Hub is also where interested neighbors learned about and are able to ride in the newly introduced self-driving cars.

Access Hubs have had the effect of increasing the number of trips to the neighborhood center – most by walking -- replacing some of those previously taken outside the neighborhood – usually by driving. They have shortened trips, attracted a greater number of neighborhood residents to the center, and become a focal point for transportation options. They also became a catalyst for new centers in those neighborhoods that lacked one in 2015.

Built Environment

The South Bay, and probably other regions built out according to the post war suburban model, had a hidden strength that started to become clear in 2015. The suburban development pattern, derided by pundits as “sprawl,” when matured through decades of infill development became relatively compact. The South Bay is built around housing subdivisions adjacent to commercial strips and large, low density single purpose centers such as colleges, medical complexes, retail malls, office parks, manufacturing districts, civic centers, etc.

This adjacent mix of uses creates a pattern of very short trips which are too short for transit and too long to walk; and is a perfect match with the mobility options that have been implemented by 2025. Adding Access Hubs to every neighborhood has meant that changes to the built environment were not necessary to reach the 2025 sustainability and quality of life goals.

Nevertheless, things change and by 2025 the built environment has begun to evolve driven by the public’s interest in walking and using pedal technologies more. Beginning gradually and then gaining momentum, the built environment has migrated to a slightly different pattern with robust neighborhood centers enhanced by Access Hubs (as described above) as the significant innovation.

Each center has a unique character that reflects the interests of its neighbors with a mix of retail, office and light manufacturing. The primary feature is compactness with each entity occupying relatively small spaces. The key is that there is a lot going on in each center.

Another observable difference is that the commercial strips that are closely associated with suburban sprawl are gradually being replaced with low to medium density housing. Strip commercial is often underperforming occupying older buildings ripe for replacement, depending on factors such as lot size, ownership patterns and land value. The housing added helps to support the new neighborhood centers.

The Role of Disruptive Technologies

The automobile in 1900 went on to "change everything," and the internet of 1990 is on its way to changing everything. Therefore a vision of neighborhoods in 2025 should begin to embrace some of the emerging technologies with great potential for improving quality of life. Here are some speculations:

3D Printing

Already on the market in 2015, experts predict that 3D printing will disrupt the location of manufacturing with significant impacts on freight movement. Access Hubs can incorporate 3D printing machines for neighborhood residents to develop skills and to fabricate custom-designed items needed for home repair and home-office use. In an extreme example, residents might be able to use 3D printers to build their own neighborhood vehicle using patterns sold by GEM and others analogous to the house patterns sold by Sears and Roebuck in 1900. Realizing that possibility would substantially drop the cost of neighborhood mobility.

Autonomous Vehicles (AV)

These are essentially robots that drive and have tremendous implications for society. Once introduced in reasonable numbers, AVs have the potential to disrupt public transit as we know it and/or even car ownership. Seniors who have lost the ability to drive can remain mobile; get to doctor's appointments, visit community centers, food shop, visit friends, etc. A shared AV trip to school for the children in a neighborhood can be organized by the Access Hub.

Robots

Robots currently exist that can build other robots. They can vacuum floors and clean windows. It is safe to predict that by 2025 robots will be ubiquitous with a tremendous impact on jobs. It's possible that restaurants will use robots to bus tables and maybe

even take orders. Another possibility is, in combination with autonomous vehicles, a robot will ride along with a senior to the store and help them carry packages from the store to the vehicle and from the vehicle to inside the home.

Drones

These are robots that fly – and act like remote controlled helicopters. Drones can carry a payload whose options can include weapons, cameras, mail, groceries, etc. As early as 2012 Amazon was considering testing drones for "locker" or home package delivery. Within ten years, that application will surely be feasible for some situations. That is, if personal drones that fetch packages for each household do not happen first!

Virtual Reality

Society has begun to pursue realistic, immersive experiences in mediated communications. Super clear digital audio recordings, ultra high definition television sets, big screen TVs, and 3-D projection are examples moving in that direction. Virtual Reality (VR) is the ultimate technology for realistic immersive experiences. Today, the technology remains a few years from being ready for the marketplace, but potential near term applications include motion pictures and gaming. Once mature, VR has the potential to dramatically change travel for business, recreation, education, and shopping.

Smart Phones and Wearables

By 2020, smartphones will have the computing capabilities of desk tops in 2015. That means that mobile apps that today have limited functionality will run the full featured software. It will be possible to record a 60 minute video on a smartphone, edit it with Final Cur Pro and distribute via email. Or, record the video on Google Glass and edit on a smart wrist watch. Or, the smart watch will monitor your health and transmit concerns directly to your doctor. Either on our bodies or at our desks, individuals will have immediate access to more computing power and network functionality than was available in a small city hall in 1980.

Internet of Things

Already in 2015 there are more "things" connected to the Internet than people. The connected life includes smart tennis rackets that transmit data to a computer program that analyzes various aspects of the swing and contact with the ball; family dogs can be tracked; babies monitored in their crib; seniors monitored 24x7; tea kettles turn on by a smartphone, etc. Cities could look at the prospect of guiding new housing toward becoming smart – including programmed lighting, smart appliances, smart phone

controlled entertainment systems, remote locking and unlocking doors, entry pass codes, surveillance systems, and security alarms.

Endnote

Just as disruption can destroy what is, it can also open opportunities to influence what will be. This General Assembly kicks off what hopefully will become a continuing dialogue about creating a role for neighborhoods in the ongoing process of redefining where and how we live, shop, consume education and medical services, how we interact with government, how and where we work and how we move around the South Bay.