Application in the Region

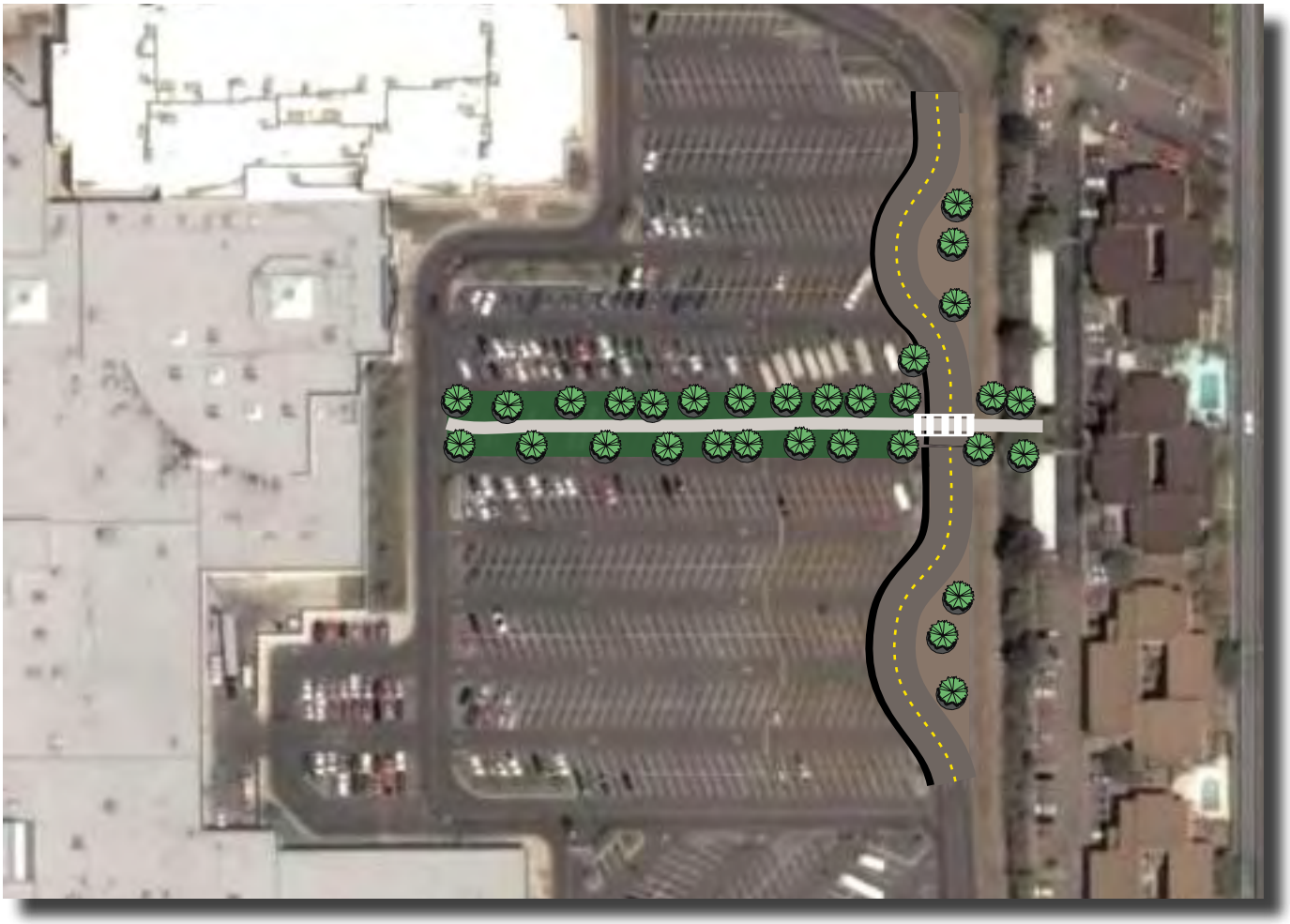
These concepts, when utilized, can implement a more walkable area. For instance, existing land development practices in Brownsville, combined with a general lack of pedestrian facilities, serve to discourage walking in many areas. One such example is near the Sunrise Mall. On the east side of the Sunrise Mall, one can find more than 100 residents living on Jose Marti Street. There are a number of residential (condo) units built in the 1970s or 1980s that are very close to mall. These units have been separated from the Sunrise Mall by a deep, water-filled drainage ditch as shown in the image below.

Due to this barrier, a potential shopper (at these units) would need to travel via automobile to go to the mall. Even though the distance to the mall is a reasonable distance, approximately 900 – 1,000 feet, a shopper had to use of FM 802 to get there, thus increasing local vehicle trips in already congested areas. Given the passage of nearly 40 years, this ditch has recently been filled in. Concrete culverts now serve to transport drainage water, and these culverts have been covered with earth. However, no sidewalks exist. Thousands of dollars have been spent to remove a barrier, but no funds have been allocated for sidewalk construction to encourage walking.

For the sake of this illustration, let us suppose that sidewalks were indeed built, with private or public funds. After this resident of Jose Marti travels west towards the mall, what would he or she encounter at the edge of the mall property? The pedestrian would find a vast field of asphalt, 99% of which is devoted towards accommodating the movement or parking of vehicles. There are not any pedestrian markings, signage, or accommodations exist for safe, pedestrian movements. The north-south mall roadway lanes do feature long "straight-ways" that resemble drag strips. This encourages speeding, and speed bumps

have been introduced to slow vehicular traffic. However, some drivers (those with trucks and SUVs with high suspensions) still speed or drive too fast over these bumps.

A better design situation (for motorists and pedestrians alike) would be to introduce some carefully calibrated curves to slow down traffic, pedestrian islands to provide safe refuge, and more curbs to separate traffic. Marked pedestrian crossings could be introduced at the appropriate locations. The illustration below demonstrates how a donation of two rows of parking can introduce a more pedestrian friendly environment.



Similar to many other cities in the United States, the City of Brownsville has few pedestrian codes and little enforcement powers in terms of parking lot design. Every motorists transitions from driver to pedestrian during every trip once the car is parked. Safe pedestrian access to and from the store should be a given, not a rarity. Changes will be needed if Brownsville wishes to become a walkable community, or a bicycle-friendly city. Citizen preferences for more walkable neighborhoods in Brownsville have surfaced again and again in recent years via Imagine Brownsville surveys and with citizen input provided to MPO staff. It is strongly recommended that local leaders reexamine current policies and procedures, to see how regulations can be improved to better address these challenges.

Implementing Multimodal Transportation Systems

While effective multimodal transportation systems are intricate networks that function optimally as seamless complete systems, the reality of regional infrastructure transformation is that development of such a system will happen incrementally over a variety of time spans. This development is also tied transportation agencies and capital improvement plan updates. For example, Copenhagen (considered a model for pedestrian-friendly streets) realized its multimodal vision over a 30-year period. It formed consensus for significant change in its urban form and its citizens' lifestyles by demonstrating the benefits of that change over time.

To realize a multimodal system, multiple, connected transportation options must be present and land development must be coordinated. The system will allow a person to travel to places where they work, live, and play in a convenient way. If the transit system can only get a person to one central place conveniently, they will not likely use the transit system regularly. On the other hand, there is a great cost associated with creating multimodalism, in terms of alternative mode priority conflicting with already congested corridors as well as the cost to provide the new transportation choice. A minimum spacing of multimodal corridors and stops will aid in defining a minimum performance guideline. This guideline should be used to plan infrastructure regionally and as a basis for resolving local access issues. — Spacing and Connectivity Guidelines adapted from APA Planning and Urban Design Standards.

The table below suggests minimum spacing for modal connections and access points. This guidance should be balanced against the array of possible connections to provide sufficient route choice, alleviating congestion and avoiding isolation of a place and supporting a sustainable development initiative.

MODE CATEGORY	KEY CROSSING (HUB)	DESCRIPTION	MAJOR SPACING	MINOR SPACING	LOOP DENSITY
Inter-City (rail)	Nodes where needed	Interurban station or major MM crossing	Key destinations or at least 1 per city	As viable and > 4 mi	N/A
Intra-City (fixed/light-rail)	<10 sq. mi	Change lines	Key destinations or ~ 4 mi	As viable and < 4 mi	At least 1 per city
Intra-City (unfixed/BRT)	Destination lacking transit or < 8 sq. mi	Crosses fixed rail transit	1-3 mi	0.5-1 mi as per demand	4 per sq mi
Local (bus)	<2 sq. mi	Crosses transit or BRT	1/4 mi	1-3 blocks for 4000-2000 people per sq. mi respectively	40 per sq. mi
Bike	Bike Port at major bike destinations	Connects to bus	1-2 mi	<0.5 mi	50 per sq. mi
Ped	1/2 mi for major hub, 1/4 mi for minor	Placemaking crossing	1/2 mi for fixed transit stop	1/4 mi for bus	50 per sq. mi

The inter- and intra-agency coordination needed to accomplish multimodal initiatives is extensive and critical. Multimodal systems stem from multidisciplinary plans, project development coordination, and smart growth land development regulations that consider the mobility of multiple modes. Linear thought processes that typically drive major public and private investments must be supplanted with methods for meeting mobility and livability desires from the perspective of the end user.

Regions that have adopted a multimodal perspective to transportation planning and project development began with a long-range plan that focused on connecting land use and transportation at the regional, district, and corridor level. A multimodal system plan would create a model for planning and designing transportation facilities in the MPO area that could then, be connected to further detailed plans for walkable districts and multimodal corridors. Multimodal transportation paired with sustainable land development initiatives has the ability to solve mobility issues while using existing knowledge and physical resources. A new multimodal perspective would coordinate projects and initiatives with a time line that benefits all users and create sustainable outcomes.

Sample Case Study — Legacy Town Center

Legacy Town Center, located in Plano, is a mixed-use sustainable high-density town center located within a 3,000 plus acre suburban business park. This project introduces urbanism as a new commodity in a landscape of quintessential suburban character. Legacy Town Center is an infill development amidst existing corporate campuses and can be considered a new suburban typology with the potential to become a model for similar projects nationwide. The challenge was to create a new realm that responded to, embraced, and transformed an existing suburban business park, which previously had been nationally recognized as a model of commercial master planning, flexibility, and diversity.

The 150-acre project will be a combination of live-work units that will tie in with its single-use neighbors, providing a pedestrian-scaled, dynamic, and rich set of experiences. At the heart of the development is a network of interconnected streets and open space designed to encourage walking by residents, daily workers, and visitors to the area. The image above shows an image of a paseo used to move pedestrians from parking areas behind the buildings to the street front pedestrian friendly areas. The images below also demonstrate how developments should contribute to the connectivity of the overall network through streets, sidewalks, walkways, through-block passageways, trails, and bikeways. As noted through connectivity index discussed previously, the responsibility of creating a multimodal environment falls on local municipalities and the developers. Development like Legacy Town Center serve as an activity center for the neighborhood, as well as the community as a whole.

Sample Case Study — Palm Beach, Florida: Worth Avenue

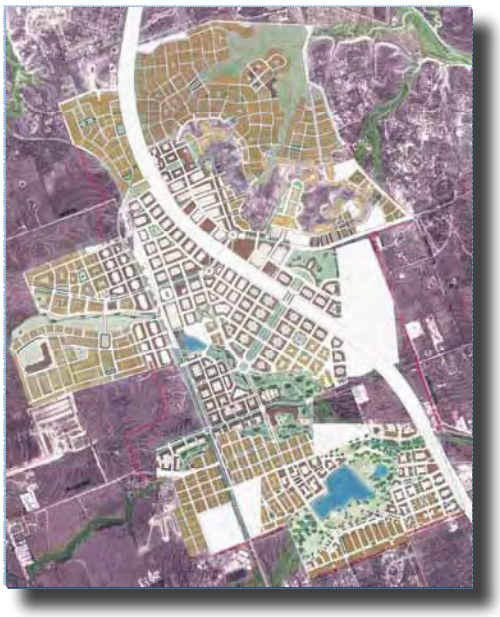
Built in the 1920s, the highly fashionable and walkable area in Palm Beach returns to an era of simpler design. In the photo (below) note the large parking areas behind the main street frontage. The streets themselves are lined with parallel parking and dominated by pedestrian movements. The large retail area is known for slow-moving vehicles and high pedestrian traffic. As in the Legacy Town Center example, many paseos from rear parking to the store fronts allow for a highly accessible environment. Furthermore, with several living areas above the stores as well as along the sides of some buildings, residents can walk from their residential quarters to access retail shops and dinning establishments. Having open air dining opportunities (sidewalk cafes and courtyards), as well as the use of outdoor shopping venues; both of these activities are quite feasible for many months of the year in semi-tropical climates. This Florida-based example dates back nine decades, but unfortunately the Brownsville region has only a few examples. These nodes of high pedestrian activity become regional draws for local residents, as well as retailers and entrepreneurs.

Sample Case Study — Flower Mound Conservation Easement

In Flower Mound, Texas a development was submitted to the Town as 1-acre plots. An offer was made to try an alternative using a revised strategy. As shown in the image below, a conservation approach was used to create new park areas and view corridors for residents. The developer, although creating smaller lots, does not lose value based on a valid property appraisal filed with the IRS (by the private developer) which enables the developer to save thousands (or perhaps hundreds of thousands of dollars) in federal taxes. One local group that could assist in this type of project is The Valley Land Fund (www.valleylandfund.com). The group's mission is to preserve and protect the natural habitat of the Rio Grande Valley. This group is active in the protection of over 8,000 acres of land for future generations.

Outside of the value impacts, this set-aside green areas assist in the reduction of overall water runoff and provide an additional buffer for streams. This real world example demonstrates how cities and developers can work hand-in-hand to provide good planning for the community while still meeting the goals of investors.

Sample Case Study — Leander Value Capture



Another example of a private and public partnerships occurred in Leander, Texas, where a case study showed how a traditional single family development could be changed to create additional value capture through sound planning principals like the mixing of uses, mixing of incomes, and the proper location of access. As a master plan was developed for the region, public officials observed that developers were drown to the area because of the predictability and reliability that would be realized.

The result of the study should that under current zoning $900 million would be realized through development. After the area was redesigned to incorporate a master plan and a key access/ transportation strategy that would harness the development potential of the region, the area would realize a value capture of over $2 billion — over a $1 billion increase.

Sample Case Study — Fort Worth Rail Market

The Fort Worth Rail Market — adjacent to the Intermodal Transportation Center in Downtown Fort Worth — is an excellent example of the adaptive reuse of a historic building to add vitality to a somewhat neglected area. Through a public-private partnership among Downtown Fort Worth, Inc.; the Fort Worth Transportation Authority (The T); and the City of Fort Worth, the long-vacant Santa Fe Northern Warehouse was redeveloped into a public market offering a variety of products to Trinity Railway Express commuters and others. The Rail Market will likely serve as a driver for additional investment in the area and lead to redevelopment of other historic buildings and under utilized properties into residential, entertainment, retail, and office uses.

Effects of Urban Sprawl Provided by the Pudget Sound Regional Council:

For the purpose of this summary, the cost of sprawl is the additional cost of a sprawling development pattern compared to compact development or smart growth. Methodologies vary widely. Some methods studied existing development; others used the hypothetical. Additional methodologies studied specific geographic areas while others analyzed the country as a whole. Many of the studies measure a certain aspect of development costs, but no study can measure all the potential added costs of sprawl. They may only measure the costs to government and thus ignore the costs of privately provided services. In some studies, capital costs are accessed while others included operating and maintenance costs.

Because of the variability among these studies, it is hard to make too many generalizations about the results. For the most part, these studies found that sprawl was more costly than smart growth. Based on the literature review and the review of the policy context in Washington state, it is easier to measure cost differences between sprawl and smart growth for physical infrastructure (e.g., roads and utilities) and public services (e.g., schools, police, emergency response). Sprawling development requires more lane miles and longer water and sewer pipes than more compact communities. Also, compact areas have a greater ability to share public services, requiring fewer fire and police stations per capita.

A review of these studies show that smart growth increases savings through capital facilities costs. Moderate savings can be found for operations and maintenance and service delivery costs. There are less tangible

costs associated with sprawl, such as the additional time spent on congested roadways, health impacts associated with pollution and safety, and impacts to wildlife and natural habitat from additional greenfields being consumed by development instead of being preserved for open space or conservation purposes.

The environmental and social impacts of alternative development patterns on quality of life and social equity are difficult to quantify in monetary terms, but are just as if not more important to how we decide to grow as physical infrastructure.

These negative impacts can be considered costs, and some researchers would try to monetize these impacts. There is also merit in discussing how these impacts have true costs that are beyond monetary measure. Some researchers would argue that trying to measure the monetary value of the impacts trivializes the "higher" cost. At the same time, the benefits of smart growth are equally difficult to quantify. For example, increased economic productivity is associated with higher-density, compact development, but it is extremely difficult to identify cause and effect relationships.

Qualitative impacts are discussed alongside quantitative costs in the following summary of findings from the review of the literature and the policy context:

- Public infrastructure and services.
- Sprawl had greater capital costs related to building more schools and extending roads, water and sewer lines, and stormwater drainage systems, even as existing infrastructure may be operating below capacity. Economic viability is threatened by diffusing rather than focusing needed public infrastructure investments.
- Operations and maintenance costs for schools, roads, water and sewer lines, and stormwater drainage were higher for low density development.
- School busing costs were higher for low-density development due to the greater distances between stops and schools.
- Sprawl across municipal boundaries blurs local government roles, fueling competition, redundancy, and conflict among those governments. It also encourages insular and parochial local policies that thwart the siting of needed regional facilities and the equitable accommodation of locally unpopular land uses.

Transportation and Travel-Related Costs

- Daily VMT per capita was higher in sprawl areas leading to greater air pollution/ozone levels which in turn produced negative impacts on public health.
- Average vehicle ownership is higher in sprawl areas, leading to greater private vehicle expenses such as gas, insurance, and maintenance.
- There are more traffic fatalities per 100,000 people in sprawl areas. Street design in sprawl areas favors the automobile, which leads to more unsafe conditions for pedestrians or bicyclists. There are fewer or marginal sidewalks and wider streets, especially in strip mall areas.
- The percentage of commuters taking transit or walking to work is lower in sprawl areas. Fewer transit options and unsafe streetscapes make these commute alternatives unworkable. Those who cannot drive and must use transit or other options to get to work or school experience negative impacts in the form of opportunity costs. Sprawl areas do not support the kind of regular public transit options that more compact development does.

Land and Natural Habitat Costs

- Sprawl consumes more land and privatizes previously common green spaces into large subdivided lots, destroying the intrinsic visual character of the landscape. Natural habitat and wildlife corridors are impacted by sprawl and its associated activities (e.g., more roads and cars, more urban runoff).
- Sprawl is associated with greater water and energy usage than compact development, as well as more building materials due to larger, predominately single-family detached housing developments on large lots than in smart growth areas.
- More urban runoff/water pollution is created by sprawl areas due to greater water usage, more cars, and more paved areas.

Health and Safety

- Sprawl areas experience longer wait times for police, fire, and medical response.
- There are more traffic fatalities per 100,000 people in sprawl areas. (See Transportation and Travel-Related Costs above.)
- Sprawl has been associated with rising obesity. This may be linked to the design of sprawl areas, which offer fewer opportunities for physical exercise and health due to fewer sidewalks and walkable neighborhoods, and lack of interesting streetscapes or landscapes in which to walk.

Quality of Life

- Urban decline. Older urban neighborhoods tend to overpay for public services, which subsidize newer lower density development on the urban fringe, or tax base is shifted from existing urban centers to pay for new capital facilities on the urban fringe. This leads to abandonment of established urban areas where substantial past investments, both public and private, have been made.
- Social inequities exist for transportation and mobility due to fewer transit options and segregation of land uses. This is of particular concern for low-income households, and non-drivers such as seniors and youth.
- Some sprawl has been associated with less community cohesion. As activities shift to inside the home or in the backyard, there are fewer eyes on the street and less neighbor interaction. Single-use areas (fewer sidewalks and walkable neighborhoods, separated uses, large superblocks) induce residents to get in their cars for every trip, instead of walking or biking around their neighborhoods.
- Segregation along economic and racial lines exists between city and suburb, although this pattern is changing in some areas.

- Urban/rural social divide. Urbanites moving to rural areas may consider typical farming activities with its associated odors and early morning schedules to be nuisances. This can affect the productivity of traditional farming communities forced to modify their behavior to suit newcomers
- The predominance of single-family detached housing inhibits housing choice for the variety of income levels and preferences that exist. Forecasters project that aging baby boomers, echo-boomers, people having kids later in life or not at all, and others may prefer to live in urban areas or compact village or regional centers with a range of housing options and cultural amenities that sprawl areas do not offer

In some of these areas, the performance standard is a variable that changes the extent of the additional cost, revealing the complexity of the relationship between density and costs. Litman shows the relationship as a tilde (~). In rural areas, costs start low due to more residents providing their own water and sewage, and service standards that are relatively low. Costs increase in suburban areas where public services are provided to dispersed development. As densities increase and there is clustering, costs decrease due to efficiencies. Costs then tend to increase at very high densities due to congestion and high land values. However, there are additional benefits such as reduced land consumption, increased economic productivity, and reduced transportation costs associated with high-density central business districts.

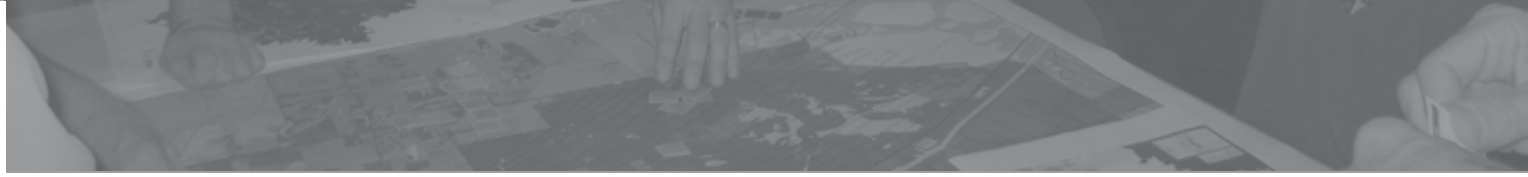
Cameron County Regional Mobility Authority

The Cameron County Regional Mobility Authority is a political subdivision of the State of Texas. The County's Regional Mobility Authority (RMA), which has been operational since 2005, has the following powers:

1) to establish toll projects;
2) to acquire or condemn property for transportation purposes; and
3) to use surplus revenues to fund other transportation projects within Cameron County.

Earlier this year, the RMA received an award of approximately $35 million, provided through the State of Texas under the American Recovery and Reinvestment Act of 2009. These monies will be used to construct a toll route to and from the Port of Brownsville and FM 511 or SH 550. This RMA sponsored project will cut travel times for NAFTA (truck) cargoes. By achieving the separation of commercial truck traffic from passenger vehicles, this roadway project will augment safety and lessen congestion problems in this area of Brownsville. Passenger vehicles will be allowed to utilize this toll road. Preliminary estimates are that passenger vehicles will pay a toll of $.50 and trucks will be charged $1.50.

This toll facility, which is to be established to the north of the existing FM 511, will begin 7 miles north of FM 3248 and continue eastward in a looping fashion over to SH 48 at a location on the north side of the Port. A new Port Access Road will be established from this SH 48 intersection southward to areas adjacent to the docks within the Brownsville Navigation District's property. All segments of the proposed toll road, and the non-tolled portion within the Port itself, will involve the construction of four new lanes. Through the scenario planning process it was evident that many "chip game" participants are in favor of the construction of this facility. Many persons felt that additional connections to the port were needed not only to relieve congestion, but also to increase economic vitality.



Moving Forward

Like many municipalities throughout the country, Brownsville's land development regulations dealing with zoning and subdivision control have outdated sections and some regulations should be examined for possible updates and strengthening of enforcement provisions. With nearly 4,500 unsold lots in the region, reform is needed. The question arises as to where to start? How to mend these ills without sending a negative ripple throughout the local economy? Miami is a recent example of a city that attempted to rezone the entire jurisdiction at one time. This effort was seen as a failure and has resulted in little positive community change. The most positive changes have come when land development regulations have been combined with wise public infrastructure investments.

The Pearl District of Portland, Oregon is most widely touted as a successful public private venture that used a combination of new infrastructure and modified land development regulations. During the revitalization of the Pearl District, Portland invested in a streetcar and livable streets with on-street parking, pedestrian amenities, and dedicated bicycle lanes. Strategically, they added municipal infrastructure to support redevelopment and created desirable development areas with the addition of public amenities, such as Jamison Park.

The question should not be whether to re-write the entire land development code, but rather what parts of the City would benefit most from a new code and how can public infrastructure shape and incentives the private investment. For Brownsville, maybe it is not a streetcar but possibly a main street, urban plaza, and a new water line paired with a form based code.

Overall, land development regulations are just one element of positive community change. The following are examples of land development regulations that can assist in creating new development forms:

- *Unified Development Code* — a single document that includes all development-related regulations, including zoning and subdivision regulation.
- *Form-Based Code/SmartCode* — a code that outlines a specific urban form rather than zoning by use.
- *Transit-Oriented Development* — moderate- to high-density, mixed-use neighborhoods concentrated at transit stops and designed to maximize access to and use of public transportation.
- *Design Guidelines* — a set of standards that aims to maintain a certain level of quality and architectural or historic character, addressing features such as building facades, public spaces, or landscaping.
- *Street Design Standards* — guidelines and standards related to travel-lane width, bicycle lanes, on-street parking, medians, sidewalks, landscaping, lighting, crosswalks, pedestrian refuge islands, bulbouts, and accessibility ramps.
- *Zoning Overlay* — a set of zoning ordinances, optional or required, specifying land use and/or design standards for a designated portion of the underlying zoning within a defined district; typically used to keep architectural character and urban form consistent, make adjacent uses compatible, and/or accelerate the conversion of non-conforming land uses.

One major infrastructure project, the West Rail Project, is deserving of a special comment. In our review of various land use documents adopted by the City of Brownsville, a serious problem involving incompatible uses has been identified. Specifically, in the northwest quadrant of the community we find residential land uses located adjacent to (or nearby) the designated corridor for the West Rail. Given that hazardous materials are commonly shipped into and out of Mexico via railcars, proximity of residential units to this future rail line poses serious threat to the general safety and welfare of the community.

It is likely that this situation developed inadvertently over time due to steps taken some years ago. The geographic area in question involves hundreds of acres located north of US 281, west of the West Rail, and south of the Resaca de la Palma State Park. Other incompatibilities exist at a smaller scale for parcels (acreage) found to the north of the West Rail corridor. Dwelling "G" is the default land use category bestowed by the City of Brownsville when parcels get annexed by the municipality. This land use designation may date back to when annexation took place. Construction of the West Rail Project has not yet started, although it is likely that such activities may begin before the end of this calendar year. To promote a safer community, we strongly suggest that City staff and officials focus attention on these issues. By acting promptly, the City of Brownsville can avert potential injuries, deaths, and/or property damage that could result in the event of a future rail car spill.

Mention should be made of the West Rail's location adjacent to the World Birding Center (WBC or Resaca de la Palma State Park). This nexus is appropriate since visitors will not be using these natural areas after dark, so evacuation (during daylight hours) in the event of a major spill is much less worrisome. Establishment of additional acreage for agricultural purposes or as parkland to the south of the WBC facility would be beneficial to the World Birding Center's mission by protecting the viewshed (surrounding parcels) of this eco-tourism destination. Thus, Brownsville officials may wish to consider the acquisition of some or all of this acreage for the establishment of a regional park, which will be needed in future decades as growth takes place to the west, along both sides of US 281. Second, the inauguration of a new land use classification — agricultural zoning — for use at this and other locations should be examined. Furthermore, a tool that can be employed to secure acreage for the type of land conservation purpose outlined above is the use of Transfer of Development Rights.

Transfer of development rights (TDR) programs allows landowners to transfer the right to develop one parcel of land to a different parcel of land. TDR programs are based on the concept that property owners have a bundle of different rights, including the right to use land, lease, sell and bequeath it, borrow money using it as security, or construct buildings on it, subject to reasonable local land use regulations. Some or all of these rights can be transferred or sold to another person. To undertake this type of program, the local government first identifies and maps those areas intended for preservation. These areas are termed "sending areas." The government issues credits (development rights credits) to landowners in the sending areas. Next, the government identifies and maps "receiving areas." Developers in these areas that seek to build at higher densities in the receiving areas must first purchase development rights or credits from the owners in the sending areas. An effective TDR program requires a high degree of certainty about where development will happen and where growth will not occur. When such a program is carefully administered, a local government can over a period of time preserve a significant amount of land, while directing new growth into appropriate areas for development.

Employing these new tools outlined in the document will create a region that is more sustainable and retains a higher quality of life for its residents. This study looked at several future possibilities, allowing stakeholders and decision makers to formulate an educated vision for the future. The call is to now act on this vision and move the region toward a better future.

Never doubt that a small, group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.

~Margaret Mead