

# THE INTERSECTION OF TRANSIT AND LAND USE

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## Introduction

In Northeastern Pennsylvania, public transit has often taken a backseat to passenger cars in recent decades. According to the most recent data from the U.S. Census Bureau, among Lackawanna County residents, only 0.6 percent of commuters used public transportation. Among Luzerne County residents, only 1.1 percent traveled to work using public transportation.<sup>1</sup> This figure is over five percent statewide. According to a separate analysis of public data by FiveThirtyEight, the region had 6.9 public transit trips per capita in 2013. This was a lower total than many urban areas of similar size around the state, including Erie (18.2 trips), Reading (13.1), York (8.8), and Allentown (8.1).<sup>2</sup> Many communities around the United States have begun to view the dominance of auto transportation as a detriment towards achieving goals of sustainability and equity.

The purpose of this report is to examine the practices, design schemes, and policy tools which municipalities can utilize to increase transportation options (including public transit) and thereby reduce inequity in transportation. Various studies have found that the best way to increase public transit use is by having dense commercial spaces (or mixing commercial with dense residential), being strategically located near a main transit hub and being easily accessible for most people, including people with disabilities and the elderly. To achieve this type of development, municipalities can implement policies which can entice denser, mixed-used commercial and residential development. Other physical attributes of the environment, such as sidewalks and bicycle infrastructure, also contribute to increasing transportation choices.

## History and Context

In 1956, President Eisenhower signed the Interstate Highway act of 1956, which radically

"moved the government toward a transportation policy emphasizing and benefiting the road, the truck, and the private motorcar."<sup>3</sup> The car changed the landscape of America. It began the suburbanization of America and led to sprawling metro areas which included smaller neighboring cities, the dense suburbs, and small towns connected with the greater metro area by the highway.

Up until the early 20<sup>th</sup> century, large-scale commercial business was conducted in cities, but the automobile, the highway, and the emigration from American cities to suburbs radically changed civil and commercial practices. In the newly formed suburbs, economic activity shifted to corporate plazas and industrial parks. These persistent trends in American suburbs created the need for the personal automobile, thus, creating great difficulties for those without access to a personal automobile.

Studies have shown that decisions about where to work and live include balancing wages, housing/living costs, and commuting costs.<sup>4</sup> Urban wages and cost of living are higher than in rural areas, but individuals who live in cheaper suburban housing and commute to work to into metropolitan areas, have longer and more costly commuting. The same study, found that improving transportation, specifically public transit, increased nonmetropolitan areas' populations. In the study, it argues that individuals usually do not choose to commute over an hour to work.

Another study posits that if housing and transportation costs influence where people live and work, then improvements in transit systems "should influence location choices."<sup>5</sup> That study argues that the main concept behind "the relationship between land use and transportation is accessibility." Rail expansion in the 1970s had little impact on land values. Local zoning polices and officials did not intensify their efforts to improve these lines.<sup>6</sup> However, a counter example, where

improvement in rail lines increased land values, is in the People's Republic of China where new cities were built around high-speed bullet train transit hubs.<sup>7</sup>

Survey research has shown that “people with longer commuting time report systematically lower subjective well-being.”<sup>8</sup> The study does not explain if individuals with “lower subjective well-being” are less likely utilize community space near their residence from being ‘burnt out’ or ‘tired.’ This may be important as utilizing public space is an integral part of Transit Oriented Development (TOD), as the use of public space can influence public transit use. Also, this research has not explored if individuals who use public transportation to commute to work, utilize more local public transportation options for non-work related functions.

## Land Use Tools for Alternative Transportation

Municipalities in Pennsylvania can utilize tools such as zoning ordinances and subdivision and land development ordinances (SALDO) to further their land use goals. Transportation outcomes, including mode choice and public transit ridership, are closely intertwined with land use. The land use principles outlined here can be used by municipalities in order to support alternative transportation choices.

Zoning is a legal practice where parcels of land are designated for a specific use. In Pennsylvania, municipalities have primary responsibility for zoning. In addition to deciding what type of residency and/or commerce can be done in the designated zone, zoning also usually regulates the overall sizes of structures, and individual units in the structures.<sup>9</sup> Zoning regulations have a profound impact on the built environment, and therefore impact transportation.

## Density and Mixed Uses

In general, zoning schemes that encourage higher density and mixed uses better support alternative modes of transportation. Development density is an important consideration in planning for public transit, as sprawling or rural forms of development result in prohibitive cost barriers to transit, as potential riders and destinations are more spread out. Communities can use zoning to guide development, and in order to enhance transportation alternatives, can encourage denser development in already built-out areas and attempt to limit sprawl into undeveloped areas.



One approach to land use planning that could be utilized to support alternative transportation is Traditional Neighborhood Development (TND). TND is about balancing commercial and residential space in a way that reflects historical urban development patterns. The result is vibrant neighborhoods that have the variety, mixed uses, and sense of place reminiscent of older cities and towns that predate mass suburbanization. The increased density of both population and commerce (compared with typical suburban or rural communities) makes mass transit, walking, and biking more feasible.

TND is a comprehensive planning system that allows for a variety of housing types and land uses in a defined area. Educational uses, civic

buildings, and commercial establishments are meant to be within walking distance of private homes. Pedestrian and bicycle infrastructure are often part of TND master plans.<sup>10</sup>

For communities that are not seeing significant greenfield development, overlay zoning can support TND principles. One example within Pennsylvania is a Traditional Neighborhood Development Overlay (TNDO) in the city of Allentown. The overlay coexists with existing traditional zoning districts but reinforces TND principles, such as:

- Requiring front yard setbacks match the character of the existing neighborhood (in most neighborhoods in the TNDO, zero front yard setbacks are typical)
- Requiring parking to be placed behind buildings so as not to interrupt the streetscape
- Minimizing the number of driveways to maintain sidewalk continuity and constructing driveways from side streets or alleys, where possible.

### Form-Based Zoning

Form-based codes are a different approach to zoning compared with traditional zoning schemes. Like traditional zoning, form-based zoning includes a map with designated areas to be regulated by certain standards, a description of standards and regulations, and administrative policies and procedures.

However, form-based codes are different in their approach to traditional zoning in that they regulate building type, mass, and placement without significant emphasis on different uses. Instead of segregating uses (such as commercial, light industry, and housing) into different districts, a form-based code might instead specify street typologies, minimum number of floors, minimum lot coverage or façade frontage, and set standards for street furniture, street trees, or on-street parking.<sup>11</sup>

Form-based zoning supports the development

of communities that are denser, more urban, and more walkable.

### Cluster Zoning

Cluster zoning is another approach to encourage denser communities and therefore expand transportation options. This approach is also called Planned Unit Development (PUD) or Flexible Zoning. Under this scheme, regulations within a zoning code would allow developers of multiple housing units to build more dense development (such as smaller lots, smaller setbacks, or multifamily units where they would not otherwise be allowed) in exchange for conserving open space within the development.<sup>12</sup>

For example, if a municipality's zoning regulations set a minimum lot size of  $\frac{1}{4}$  acre, up to 40 units could be built on a 10 acre lot. However, in a possible cluster zoning scheme, the zoning regulations may allow the developer to build the same number of housing units as townhomes on five acres of the lot. The remaining five acres would be designated as open space. This approach allows for increased density and additional open space preservation without increasing development impacts on the municipal government, as the total number of dwelling units is unchanged compared with traditional zoning.



### Parking

Historically, parking lots were 'pay-to-park,' small, and represented an insignificant share of urban land use because much of commercial life was still in the streets. But with the rise of automobile and suburbanization, parking

increased in prominence. Starting in the 1950s, developers began to construct shopping centers with ample free parking, beginning an ongoing suburban trend of devoting large amounts of space to paved parking lots.<sup>13</sup> Many modern retail centers provide a huge number of parking spaces to accommodate 'Black Friday' shoppers despite the fact that on a typical day many spaces are unutilized.<sup>14</sup> Further adding to an overabundance of parking in shopping centers is the increasing prevalence of online shopping which has reduced foot traffic of suburban shopping malls.<sup>15</sup> Additionally, many suburban retail centers are fragmented into unconnected strip malls, plazas, and standalone big box stores. Retail destinations are separated by busy roads and vast parking lots that are unsuitable for walking and biking and increase the burden of providing bus service.



One way of improving shopping centers is by increasing access. Shopping centers can “[m]aximize public transportation and pedestrian access...[by] providing comfortable bus stops and shelters located close to building entrances...and should be safe for the elderly, disabled, and small children.”<sup>16</sup> Also, having “[d]irect and safe pedestrian access between stores and adjacent buildings” improves interconnectivity between shoppers and stores. By having shopping centers closer together with sidewalks that are safe, and enjoyable for pedestrians to walk on, is a major way to improve interconnectivity between shoppers and stores.

An important aspect to make suburban areas more transit-friendly is to reconsider minimum parking requirements within the zoning ordinance. It has been suggested that parking minimums overburden developers and lead to an overabundance of parking. This harms transportation alternatives by vastly reducing the density of the built environment and deprioritizing pedestrian access to buildings. The city of Buffalo, New York has recently removed all minimum parking requirements in the city and instead requires large projects to conduct parking needs assessments that consider availability of alternative transportation modes in order to determine if there is a need for more parking. Other cities have eliminated minimum parking requirements for certain neighborhoods or districts.<sup>17</sup>

## Sidewalks

Studies show that having more sidewalks connecting commercial and residential properties “help[s] bring neighbors together, decrease(s) automobile dependency and lessen(s) air pollution.”<sup>18</sup> Sidewalks are also critical to maintaining connectivity and supporting walkability. Sidewalks also support bus transit by providing safe places to wait for a bus and a pathways for riders to walk to and from bus stops.

Local municipalities have significant leeway in developing sidewalk policies.<sup>19</sup> Whether or not to require sidewalks in certain zones will greatly affect the character of neighborhoods. By requiring sidewalks in new developments, especially where the development is served by public transportation, municipalities can greatly promote transportation alternatives. However, it does add an additional burden to developers and may not be necessary for developments that are isolated from existing neighborhoods, public transit, or trails.



Sidewalk design standards are typically set at the state level, with new sidewalks between five and six feet wide. Though, there are waivers for sidewalks to be narrow if adequate safety can be ensured.<sup>20</sup> Municipalities may also grant waivers to municipal sidewalk requirements, or may not consistently enforce requirements, to avoid overburdening developers or homeowners. However, municipalities must also consider reduced transportation choices as an important downside to a lack of sidewalk connectivity.

Sidewalks and other pedestrian infrastructure also are tied to economic benefits. According to one analysis, the presence of a sidewalk and street trees can result in a home selling more quickly and for thousands of dollars more than a comparable home without them. Builders may achieve a return of fifteen times the investment in sidewalks in the form of increased sale prices.<sup>21</sup> Cost of sidewalk construction varies, with estimates ranging from \$12 to \$92 per linear foot; many estimates are in the range of \$30 to \$40 per linear foot.<sup>22</sup> Furthermore, sidewalk construction costs fall when sidewalks are incorporated into larger road construction projects or if multiple smaller sidewalk projects are bundled together. In light of the manageable costs of sidewalk construction and their economic benefits, requirements imposed on developers are not likely to be a significant barrier to development in most cases.

Finally, sidewalks are tied to better health outcomes. Sidewalks promote more walking which in turn improve public health. A healthier community is also economically stronger.

## Encouraging Transit Oriented Development

TOD centers on the development, especially dense development, of commercial mixed-use space of the areas around a specific transit hub. TOD holds that “development that is built near a transit stop with the transit stop in mind in order to form a sense of place and social cohesion.”<sup>23</sup> This contrasts with transit-adjacent development, which is built near a transit hub but is not specifically oriented towards it. One study finds that the “increase [in] densities around transit stations and stops... increase[s]” public transit use. Another study, which examined the implications of a 2008 California law, which requires the integration of land use and transportation planning, found two major points on public transit use:

1. Transit ridership is dependent on users’ proximity to transit, particularly workplace proximity.
2. Employment density is more closely associated with transit ridership than residential density

In all, research shows that density is one of the major indicators for public transit use. Transit oriented development is one means to achieve increased residential and employment density around transit lines while simultaneously revitalizing urban centers.

## Financing Approaches to TOD

An EPA study of TOD infrastructure financing identified seven broad categories of financial tools available to support TOD:<sup>24</sup>

1. **Direct fees**, such as user and utility fees
2. **Debt tools**, including private debt and bond financing

3. **Credit assistance**, such as federal and state credit assistance and the Transportation Infrastructure Finance and Innovation Act (TIFIA)
4. **Equity**, including public-private partnerships and infrastructure investment funds
5. **Value capture**, including developer fees and exactions and tax increment financing
6. **Grants and philanthropic sources**, including federal and state grants and foundation grants and investments
7. **Emerging tools**, such as land banks

In many cases, a combination of funding tools is most appropriate. Direct fees would apply to most potential TODs and include things like transit rider fares and parking fees charged in TOD-adjacent parking structures. Local governments could consider issuing bonds backed by user fee revenue to help fund TOD projects.<sup>25</sup>



Another particular source of note is public-private partnerships. In this arrangement, one or more private entities would share in the risks and rewards of development. In a typical public-private partnership for TOD, the capital cost to finance the project (or a portion of the project) would be provided by private sector partner(s)

who would then collect some portion of the project revenue. In exchange, the public sector partner guarantees a certain level of payment even if the actual project revenues do not fully cover the guaranteed amount.<sup>26</sup>

Land banks, a relatively new tool in Pennsylvania, could allow developers to affordably and efficiently assemble properties to be redeveloped under a TOD plan.

### Tax Incentives for Development

Municipalities can also utilize their taxation policies to further their development goals. Millage taxes are collected by municipal governments, within limits set by the state. However, states and municipalities can allow exemptions which can greatly lower tax rates, such as farmland, homestead, newly built home, church, charitable exemptions. Tax exemptions, incentives, or abatements can be used for development too. One study states that governments use the “tax system to partner with the private sector on economic development initiatives...that promise jobs and increased economic activity.”<sup>27</sup>

States and municipalities can tailor and package these types of tax incentives for developers who will invest in projects that can increase public transit use in their respective metro area. Working within state guidelines for municipal taxation, municipalities may be able to provide incentives for mixed-use development, dense development, and TOD. However, many municipal governments’ fiscal challenges or small tax bases may limit their ability to make an impact in this way, as do limits in state municipal codes that may restrict municipalities’ ability to offer some types of incentives.

### Enhancing Connectivity

Beyond ensuring that neighborhoods provide for transportation alternatives, it is also

important to consider ways that communities can become better connected with one another and provide more opportunities for active transportation.

### Economic Development

Industrial and business parks have generally low density and poor connectivity to alternative transportation modes. Planning officials can use zoning and land development regulations to encourage infill development and increased connectivity. Economic development entities can also influence the design of developments.

Ensuring that public transportation adequately serves industrial and business parks supports both transportation and economic development goals.



*“One recent developer of a large distribution facility for Chewy.com took steps to confirm public transit service to the site and committed to installing two bus shelters at the location. LCTA met with the developer to review the transit service to the site. The company adjusted shift times to accommodate those employees who would be using public transit. LCTA met with company officials to further review their needs and plan to modify the bus route that services that location. There has been a significant increase in ridership on the route servicing that company. Many days there is standing room only on those buses. The developer has since added two tenants in a building on-site and has purchased another parcel on the other side of the industrial park for several more tenants. This series of events were an important consideration in the decision by LCTA to add night service routes to several industrial parks beginning in late April of 2018.” Norm Gavlick, Executive Director, Luzerne County Transportation Authority*

Transportation is also a factor in location choice. Businesses are not only concerned about product movement and transportation, but how their workforce can get to work regularly, timely, and with little stress. A recent example of a successful business attraction is highlighted. Here, the transportation agency, the developer and the company worked together. This synergy led to Chewy.com locating in the region, but also opened the door to two other successful locations – Adidas and Patagonia.

In its highly publicized search for a site for a second headquarters, Amazon has indicated that access to mass transit is an important consideration when selecting a city.

### Trails

Multi-modal trails, which can be used by pedestrians, cyclists, or equestrians, provide opportunities for active transportation as well as recreation. Trails can be most effective at providing transportation choices if connectivity with housing and employment centers and public transit corridors is also considered.

Communities can participate in existing initiatives such as Rails to Trails, which repurposes former railroad rights of way as multimodal trails. It may also be feasible to provide pedestrian or cycling infrastructure, such as sidewalks, bike lanes, or navigation signage, to connect existing long distance trails (such as the D&L trail and Lackawanna River Heritage Trail) with town centers, bus corridors, or neighborhoods.

### Parks & Public Spaces

Parks, plazas, and other public spaces represent an important part of the transportation network. Linear parks, which are parks that cover a relatively long and narrow footprint such as along a waterfront, can form a pedestrian and cyclist corridor that enhances connectivity between neighborhoods.

Elevated parks, also known as high lines, are elevated above the streets and reconnect people with cities in a new way.<sup>28</sup> In many cases, they are a way to increase transportation connectivity while repurposing old infrastructure such as elevated train tracks, as in the New York High Line and the Hoover-Mason Trestle in Bethlehem, PA. Elevated parks are a mix of walking, jogging, and bicycle paths – often containing sculptures, gardens, and mix-use buildings scattered the length of the line. Elevated parks have great potential for mixed uses, and can even be a tourist destination in their own right.

## Conclusions & Recommendations

There are several means that can be used to achieve increased residential and employment density, which better support transportation alternatives, and bus transit specifically:

- Zoning for increased density and/or mixed uses
- Alternative zoning approaches such as overlay zoning, cluster zoning, or form-based codes
- Requiring sidewalks in new developments, where appropriate
- Reconsidering parking requirements within zoning ordinances to lessen overbuilding of parking
- Encouraging transit oriented development, where appropriate
- Using trails, parks, and other public spaces to further enhance connectivity



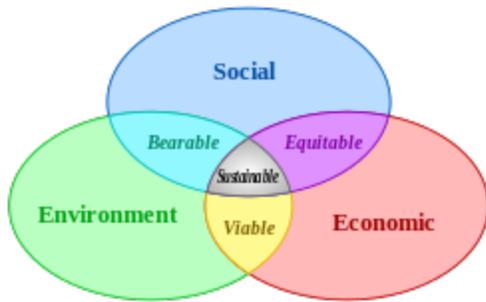
For municipalities that wish to prioritize transportation alternatives, there are ways to easily put these principles into practice. For example, in the City of Scranton, the current zoning ordinance exempts the downtown district from minimum parking requirements; however, parking requirements exist for many uses in other zones. Communities such as Scranton could consider similarly exempting neighborhood commercial or mixed use zones from minimum parking requirements.

Communities of all sizes might consider adopting model ordinances to implement principles such as TOD overlays, cluster zoning, or other zoning that supports higher density and mixed use development. In 2007, Lebanon County identified several model ordinances from within Pennsylvania for a variety of topics. Among the identified ordinances were:

- Model ordinance for Town Center zoning district (Montgomery County, PA)
- Traditional Neighborhood Development District (Columbus, OH)
- TOD Overlay Development District (Langhorne Manor Borough, PA)
- Neighborhood Greenway Development (South Annville Township, PA)
- Planned United Development Ordinance (Berkeley County, WV)

Many of these model ordinances have been adopted within Pennsylvania and are therefore intended to conform to the Pennsylvania Municipalities Planning Code. The full list can be found online at

[http://lebcounty.org/depts/Planning/Documents/CompPlan-AppendixIII/SummaryofModelOrdinances\\_final.pdf](http://lebcounty.org/depts/Planning/Documents/CompPlan-AppendixIII/SummaryofModelOrdinances_final.pdf)



Several principles highlighted here are consistent with the Lackawanna-Luzerne Regional Plan and Long-Range Transportation Plan, which prioritizes compact development in the region’s urban core and connectivity between transportation modes.

There are other factors that also impact the viability of transit and transit ridership, including cost, frequency of service, operating hours, rider experience and comfort level, and rider perceptions. However, the approaches outlined in this report are tools that municipal and county governments and planning bodies can consider in order to encourage built environments that provide for more transportation choices.

Efforts are underway by the regional transit agencies to expand hours, routes and phone apps. The transit agencies have been working together for nearly two years to create regional routes.

Given the current state of transportation in the region, the following are recommended guiding principles for regional land use and transportation planning moving forward.

- It will take decades of long-term thinking and thoughtful planning in order to make measurable gains in transportation choice, congestion,

safety, and air quality. It is also important that efforts to transport people work hand-in-hand with long-range planning for intermodal freight.

- Local governments should include transportation officials as part of the planning team when it comes to new development, rehabilitation of existing development, comprehensive planning and ordinance revisions. Encouraging collaboration in the planning phases will enhance both new development and transportation access.
- Officials from county and municipal government should work in partnership with one another and with regional planning bodies to update Subdivision and Land Development Ordinances and Zoning Ordinances in accordance with the principles described in this report. Municipalities should also take a coordinated and common-sense approach to other regulations such as sidewalk requirements.
- Transportation considerations must also be a part of economic development planning: industrial and business parks have generally low density and poor connectivity to alternative transportation modes. Planning officials can use zoning and land development regulations to encourage infill. Industrial sites that are well-served by alternative transportation modes are likely to be an asset for attracting investment to the region.

## Endnotes

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