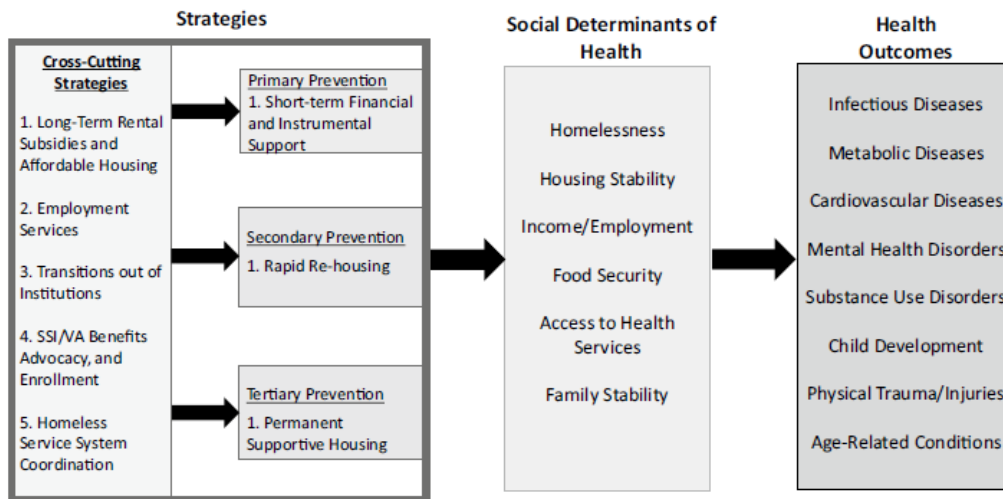


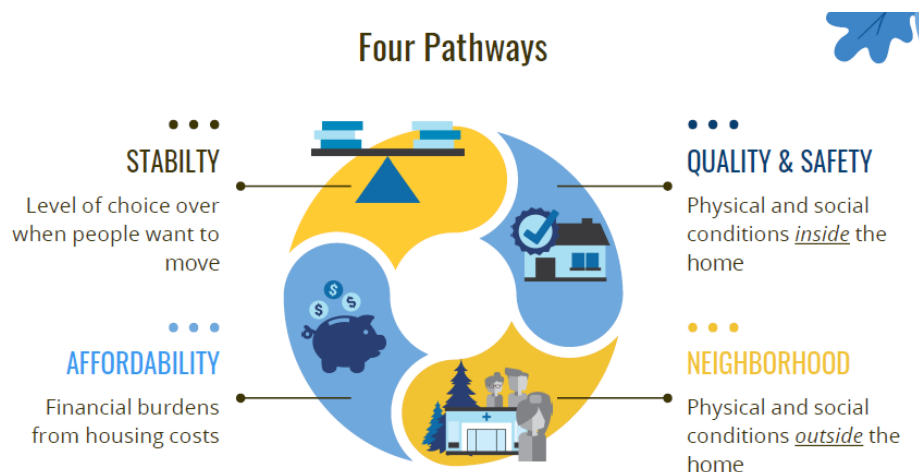
To: DTD Land Use Housing Strategies Staff
From: Abe Moland, Health and Transportation Impact Planner
Subject: DTD Housing Strategies - Health Equity Lens
Date: January 13th, 2021

Housing + Health Frameworks

Housing is a primary determinant of community health, and an evidence-based strategy to improve health outcomes and reduce health care costs. **The development and availability of a variety of affordable housing options is an upstream, primary prevention approach to improving community health.** Nicholas and Henwood (2018) outline a framework that connects a continuum of housing provision strategies to other social determinants of health and health outcomes:



The Robert Wood Johnson Foundation outlines four primary pathways that housing characteristics influence health and health care costs. **Zoning changes directly affect neighborhood factors in the short term, and affordability and stability over the long term by making it easier for/incentivizing developers to increase the affordable housing stock.**



Robert Wood Johnson Foundation, 2018

Housing + CCPHD

The Clackamas County **Community Health Improvement Plan (CHIP)** has four guiding principles that identify the characteristics the public health division believes are need for communities to achieve good health:

<p>Grounded in Racial and Health Equity</p> <p>Eliminating disparities in health outcomes must begin with finding and removing economic and social obstacles like poverty and discrimination. By understanding and elevating the needs and power of those who face the highest barriers in our County, we can begin to ensure everyone has a fair shot at health.</p>	<p>Assessing Health across the Lifespan</p> <p>The social, physical, and economic conditions we live in influence our health in many ways, and can affect us differently depending on our life stage. Health interventions are strengthened by understanding how our social history and context impacts our biological vulnerability and resilience today, whether we are 10 or 110.</p>
<p>Using Trauma-Informed Approaches</p> <p>Trauma comes in many forms and can have significant impacts on our physical, emotional, and mental being. Building awareness around trauma in our policies, programs, and systems to avoid doing further harm and facilitate healing will help us lead healthy lives where we are able to reach our full potential.</p>	<p>Climate-Conscious Strategies</p> <p>Climate change is increasingly impacting the health of local communities in Oregon. It has been called the “greatest public health challenge of the 21st century. Reducing the causes and impacts of climate change improves health outcomes. Identifying and strengthening climate change vulnerabilities within our community reduces health inequities.</p>

The guiding principles provide a possible lens to review DTD housing strategies though:

Housing Strategies	Grounded in Health Equity	Trauma Informed Approaches	Health Across the Lifespan	Climate Conscious Strategies
04a Density Bonuses	Strategies to increase the affordable housing supply work to address disproportionate impact housing costs have on people of color.		Housing affordability, stability and proximity to essential services like school and medical services have direct impacts on health outcomes of youth and seniors	
O-5 Max Density Requirements				Affordable housing near high job areas help reduce commute time and GHG release
O-6 Minimum Parking Standards	Reducing parking may impact car dependent families if transit option are not robust		In the U.S. people outlive their ability to drive by 10 years on average	Reducing parking helps curb GHG release

The CHIP has a goal focused on housing, *Clackamas County residents have affordable, stable, safe and accessible housing.* The public health division has completed two health impact assessments related to housing, one on Veteran’s Village and one on the redevelopment of Hillside Manor.

The following sections capture health connections to specific DTD Housing Strategies proposed.

04a Affordable Housing Density Bonuses

Consider providing a tiered density bonus for inclusion of affordable housing.

- Housing is fundamental precondition for health and well-being. Strategies that increase the number of affordable housing units and housing stability are highly health promoting for physical and mental well-being across the lifespan, as well as intergenerationally (Iroz Elardo, 2019)
- Physical planning and zoning strategies have a long history of solving environmental and community health concerns. The relationship between density and health is complex, and often mediated with connectivity characteristics of communities. Forsyth (2018), Haigh et al (2014), and Hamidi (2020) identify the following health outcomes that are connected with density and connectivity in varying ways:

Density	Connectivity
<ul style="list-style-type: none"> • Air quality • Noise • Climate change • Disaster response • Ground toxics • Crime/violence 	<ul style="list-style-type: none"> • Accessibility to health care and other health promoting services • Universal design • Social capital and networks • Access to greenspace • Access to employment • Access to healthy food • Physical activity • Infectious disease (COVID-19)

- Researchers in Australia examined the relationship between density and child health outcomes, finding the impact of high density housing on child health is context dependent, and influenced by family dynamics, the social environment, and the surrounding neighborhood. They recommend co-locating family dwellings close to the ground floor (minimizing fall risk and for better eyes on outdoor play areas) and clustered together (to encourage play among children) (Heenan, 2017).
- Researchers found that adults that live in states that preempt inclusionary zoning policies are more likely to have poor or fair health rating status as identified through the behavioral risk factor surveillance survey (BRFSS). They also found an association of disproportionate impacts on Black residents in preemption states, who reported more often delaying medical care when needed due to costs. (Melton-Fant, 2020)
- As it relates to building height and health, there is limited evidence, but a few studies show:
 - There is a possible relationship between the floor a resident lives on and cardiovascular health. In analysis of 11,169 residents in Oslo, researchers found significantly higher odds of people experiencing a stroke if they lived on the 6th floor or above. A possible causal explanation was psychosocial elements like lack of perceived control and poorer social relations that have been associated with living on high floors in multistory buildings. (Rohde & Aamodt, 2016)

- Researchers found building height (1-2 floors vs 3-5 floors vs 6+ floors) is a contributing factor along with other ground and land cover properties in creating differences in urban heat climates. (Stewart 2013)

05 Maximum Density Requirements

Consider increasing or removing maximum density requirements for multifamily developments in commercial zoning districts.

- The [County Health Rankings](#) ranked Clackamas County as the 4th healthiest county in Oregon in 2020. In all category areas the county ranked in the top 5, except for in the physical environment category, in which it ranked 29th. The two variables that lower the county’s ranking in this category are ‘Driving alone to work’ (76%) and ‘long commute – driving alone’ (46%). Creating more housing options within commercial areas will contribute towards reducing long commute times, and in turn the time residents spend sedentary, alone, and at possible risk of traffic crashes while commuting.
- In the Hillside Health Impact Assessment, 58% of residents that participated in engagement period reported attending a medical appointment in the past week, while only 36% reported driving in the past week (Iroz Elardo, 2019). Proximity to medical destinations should be a location factor considered for higher maximum densities.

06 Minimum Parking Standards

Consider creating a hierarchy of minimum parking standards based on proximity to transit and/or dwelling unit affordability.

- Strategies to reduce car-dependency in turn help reduce the release of greenhouse gas emissions, climate change associated with global warming, and in turn the negative health impacts associated with climate change.
 - The Regional Climate and Health report (CCPHD, 2019) identified heat-related illnesses (resulting in ED admissions in particular) as a growing concern in Clackamas County. The rate of ED admissions increased every year between 2016 and 2018. The reduction of parking spaces is a strategy to reduce urban heat island effect and lower temperatures in areas with higher density.
- The built environment does not determine but does help shape health outcomes. As density increases, so can urban related problems related to increased car travel like noise, emissions, and exposure to crash risk. Creating flexible, adaptable parking requirement that allow for/encourage development patterns that normalize non-auto modes of travel help address potential issues related to urbanization.
- As part of the assessment phase of the Hillside Health Impact Assessment, Iroz Elardo Research examined the relationship between car ownership, housing, and health with some specific application to Milwaukie. That work is copied in an appendix below.

Appendix A. Parking and Car Ownership. Hillside Health Impact Assessment Site Memo.

Land within the Hillside complex can be thought of as being assigned to three broad redevelopment categories: (1) buildings containing affordable housing and community amenities, (2) outdoor community and green space, and (3) surface parking lots. Some level of parking is clearly needed. However, housing and outdoor space are clearly health promoting while surface parking lots are not.

Parking's impact on health is nuanced. In active transportation and climate adaptation circles, parking is viewed with suspicion as a mechanism that supports and thus may induce driving (Weinberger, 2012) and resulting emissions; reduce physical activity for both the drivers and those who do not find walking near parking appealing; and surface parking lots are typically impervious surfaces that contribute to the heat island effect (see Shoup's *Parking and the City*, chapter 8). Yet car access and ownership is often viewed as a positive factor in finding and maintaining a job by opening up spatial areas not previously available to a low-income person – also known as job accessibility.

Parking is also highly contextual. Car ownership increases with income. Any decision about reducing parking must be closely linked to underlying assumptions about increased service levels of alternative modes, in particular public transportation. Parking ratios will need to be higher in a redevelopment project in a suburban setting than in a redevelopment near a high-density of public transportation options.

What are the current conditions?

The Fall 2018 HIA Survey estimates that only 36% of all residents drove last week. Rates are lower for Manor residents (29%) and higher for those in the Park (43%). It is also notable that when residents were asked to write in important public spaces, only a single person suggested parking. (For comparison, 7 residents noted the walking path while 4 noted the community garden.)

Using Google Maps with 2019 imagery showed 32 vehicles and 2-3 delivery trucks at the Manor; 38 cars in driveways in the Park; and 19 vehicles on the street throughout the Park. While the Google Maps imagery is during the day – and so presumably some vehicles are at resident's place of work – this technique also captures those working at the manor mid-day. Further, the 3D aerial imagery is based on multiple photos, leading to some “ghosting” and thus likely slightly overstating the number of vehicles.

These data-points suggest that Hillside does not need the amount of parking spots typically required by existing regulations. ***For replacement units that have similar income requirements as current Hillside residents, 0.5-0.6 dedicated parking spots per unit appears to be sufficient to meet parking demand by Park residents. However, the average income is expected to increase with densification, requiring a slightly higher ratio.*** Most stakeholders also report that the community members are often worried about parking upon hearing of plans to densify the area. These conflicting data points may indicate the role of an automobile as a symbol of financial stability; lack of current parking perceived to be “convenient”; and lack of experience living in areas with restricted parking supported by good alternative transportation modes.

Evidence from the Academic Literature

Even though much of the research around parking is usually focused on the urban core and issues such as metered parking or transit oriented development (TOD), there is growing consensus that lower-density residential urban and suburban areas are also often “over-parked”. For example, a recent investigation in Davis California suggested that even at peak use, on-street parking showed a 71% parking vacancy rate with vacancy rates ranging from 45-86% in the lowest income (\$30-35K median household income) neighborhoods (Thigpen and Volker, 2017). A similar study in Eugene of on-street residential parking found a vacancy rate of 89% (Schlossberg and Amos, 2015).

There is also a growing concern that minimum parking requirements reduce housing supply and increase housing costs and rents (Andersson et al., 2016). This extra cost disproportionately affects renters who are less likely to own a car and for whom transportation costs make up a large portion of the household budget. For example, a recent national study suggest that renter households spend an additional \$1700 per year or 17% of a housing unit’s rent on the housing premium associated with garage costs (Gabbe and Pierce, 2016). Gabbe & Pierce suggest unbundled parking as a way to more appropriately match parking to households that truly need it and thus bring down the cost of housing.

Some stakeholders have expressed concern that future moderately-low income subsidized housing units planned are more likely to be “working” low-income with cars and thus need more parking. Indeed, the concern that most lower-income households are car-less by circumstance rather than choice is well founded (Brown, 2017). There is more “churn” in car ownership in low-income households than might be expected (Klein and Smart, 2015), thus incentivizing low-income households to “plan” for a parking space for the future. There is also a strong association between car-ownership, housing assistance, and employment – especially in the “moving to opportunity” context (Blumenberg and Pierce, 2016; Dawkins et al., 2015).

Households could reduce the cost of car ownership and go car free or car light if transit and active travel options are convenient; this could be very helpful for low-income households living on the margin. Indeed, Census data suggests that in almost every way, the new redevelopment could minimize parking. The Census shows that renters in Milwaukie are far more likely to be car-less or have just one car in the household when compared to homeowners (Table 1). Similarly, the number of cars is closely linked to household size. The Census shows that 14% of single-person households are car free and 71% have a single car. Households with two people, however, are much less likely to be car free with 27% and 57% reporting one and two vehicles respectively.

TABLE 1. CITY OF MILWAUKIE, OREGON VEHICLE AVAILABILITY BY RENTER-OWNER STATUS

	Renters	Owners
No Vehicles	13%	2%
1 Vehicle	59%	27%
2 Vehicles	29%	44%
3+ Vehicles	7%	15.4%

Source: 2013-2017 American Community Survey, Table B25044: Tenure by Vehicles Available

TABLE 2. CITY OF MILWAUKIE, OREGON VEHICLE AVAILABILITY BY HOUSEHOLD SIZE

	1-person	2-people	3-people	4+ people

No Vehicles	14%	4%	2%	0%
1 Vehicle	71%	27%	14%	13%
2 Vehicles	10%	57%	44%	46%
3+ Vehicles	5%	13%	40%	40%
Source: 2013-2017 American Community Survey, Table B08201: Household Size by Vehicles Available				

There are other metrics and models that also indicate that the population likely to live in Hillside will have less demand for parking. For example, the Housing & Transportation Index (<https://htaindex.cnt.org>), developed for modeling the tradeoffs between housing and transportation costs, suggests average number of cars per household is 1.56 in the block group incorporating Hillside, in line with census blocks closer to downtown Milwaukie and significantly lower than the city (1.71) and county (1.87) averages. The 2009 National Household Travel Survey suggests the relationship between number of vehicles and income is linear, even in the bottom quartiles of household income (Blumenberg and Pierce, 2012). The Oregon Household Activity Survey (OHAS, 2018 for Region 1) confirms that low and moderately low-income households make fewer daily person trips and that 2-person households make fewer person trips than 1 or 3 person households (<https://www.oregon.gov/ODOT/Planning/Documents/OHAS-Daily-Travel-In-Oregon-Report.pdf>, pg 72). This must be balanced against the tendency for low-income households to have a higher density per bedroom, even in 1-bedroom contexts.

References

- Clackamas County Public Health Division. (2019). Regional Climate and Health Benchmark Report. Accessed at: <http://www.blueprintclackamas.com/tiles/index/display?alias=ClimateChange>
- Haigh, F., Chok, H., Harris, P. (2011). Housing Density and Health: A review of the Literature and Health Impact Assessments. Center for Primary Health Care and Equity, University of New South Wales.
- Hamidi, S., Sabouri, S., Ewing. (2020) Does Density Aggravate the COVID-19 Pandemic? *Journal of the American Planning Association*. <https://doi.org/10.1080/01944363.2020.1777891>
- Heenan, R. (2017). Healthy Higher Density Living For Kids: The Effects of High Density Housing On Children’s Health and Development: A Literature Review to Inform Policy Development in Western Sydney. Western Sydney Local Health District.
- Iroz-Elardo, N. (2019). Health Impact Assessment of Hillside Master Plan: Final Report. Clackamas County Public Health Department. Accessed at: <https://dochub.clackamas.us/documents/drupal/3b1d9600-2cb1-4aa6-bd57-8b69037a3cff>
- Forsyth, A. (2018). Congested Cities vs. Sprawl Makes You Fat: Unpacking the Health Effects of Planning Density. *Town Planning Review*. 89, 4: 333-354.
- Nicholas, W. C., & Henwood, B. F. (2018). Applying a Prevention Framework to Address Homelessness as a Population Health Issue. *Journal of Public Health Policy*. <https://doi.org/10.1057/s41271-018-0137-9>
- Melton-Fant, C. (2020). Relationship Between State Preemption of Inclusionary Zoning Policies and Health Outcomes: Is there Disparate Impact Among People of Color? *Housing Policy Debate*. <https://doi.org/10.1080/10511482.2020.1798488>
- Rohde, M. K., & Aamodt, G. (2016). The Association between Residence Floor Level and Cardiovascular Disease: The Health and Environment in Oslo Study. *Journal of Environment and Public Health*. doi: 10.1155/2016/2951658
- Taylor, A. (2018). Housing and Health: An Overview of the Literature. *Health Affairs*. DOI: 10.1377/hpb20180313.396577.
- Stewart, I. D., Oke, T. R., Karyenhoff, E. S.. (2104). Evaluation of the ‘local climate zone’ Schema Using Temperature Observations and model simulations. *International Journal of Climatology*. 34; 1062-1080.