Transit Oriented Development (TOD) Notes

City of Redmond Planning Commission, March 19, 2014

The Transit Oriented Development (TOD) literature is voluminous and the content of these notes is limited to key issues raised by Commissioners in order to inform the Commission's deliberations on those issues.

TOD, Jobs, Housing, and Ridership

- Density, whether in jobs or housing, is important to get the most out of a transit investment[3]

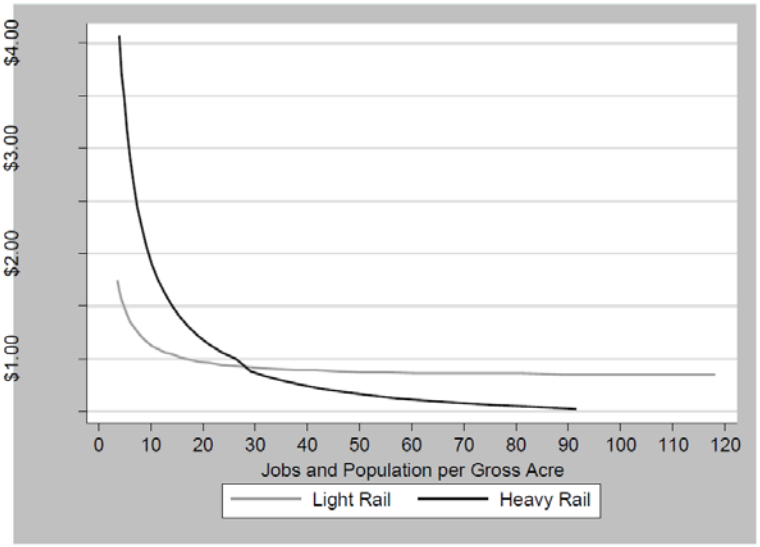
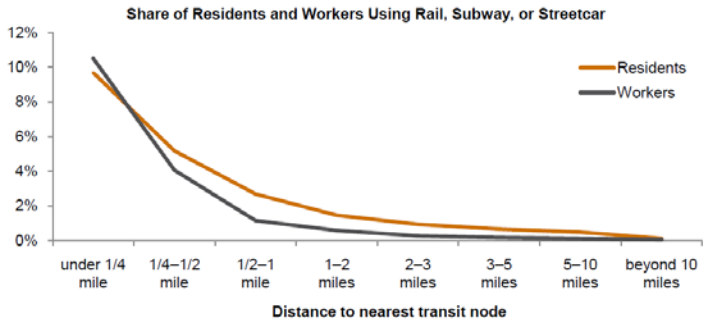


Figure 5. Net cost per passenger mile by jobs and population in average light- and heavy-rail cities.

- Proximity of jobs and housing is important[1, 2, 3, 4, 5, 6, 7]
    - Optimal walking distance for employees (commuters) is 500-1,000 feet between transit stations and workplaces
    - Optimal walking distance for residents is up to one-half mile between homes and transit stations

FIGURE 1
Transit ridership decreases as distance from transit stations increases



- Transit mode share decreases with distance from station: example from Washington D.C.[1]
    - Transit mode share associated with office use drops 1% every 100 feet
    - At half mile, transit mode share associated with residential use is triple that for office
- Factors affecting ridership also include: car availability, parking pricing, job accessibility, travel time, flex-time availability, and destination street network connectivity.[2]

Sources

1. Arrington, G. *TOD Myths: ½ Mile is the TOD Walkshed.* Undated presentation slides. G.B. Placemaking.
2. Cervero R. *Transit-oriented Development's Ridership Bonus: A Product of Self-selection and Public Policies*. 2007. Environment and Planning A 39(9) 2068 – 2085.
3. Cervero, R., and E. Guerra. *Urban Densities and Transit: A Multi-dimensional Perspective.* Working Paper UCB-ITS-VWP-2011-6. U.C. Berkeley Center for Future Urban Transport.
4. Dill, J. *Transit Use and Proximity to Rail: Results from Large Employment Sites in the San Francisco, California, Bay Area.* 2003. Transportation Research Record 1835: 19-24.
5. Dittmar, H., and G. Ohland, eds. *The New Transit Town: Best Practices in Transit-Oriented Development*. 2004. Island Press. Washington, D.C. p. 120.
6. Guerra, E., et al. *The Half-Mile Circle: Does it Best Represent Transit Station Catchments?* Working Paper UCB-ITS-VWP-2011-5. U.C. Berkeley Center for Future Urban Transport.
7. Kolko, J. *Making the Most of Transit: Density, Employment Growth, and Ridership around New Stations.* 2011. Public Policy Institute of California.

Highway Noise (excerpt from WSDOT)

The level of highway traffic noise depends on three things:

1. Traffic volumes – roads with more vehicles are generally louder.
2. Traffic speeds – traffic is louder at higher speeds.
3. Percent of heavy trucks on the road – heavy trucks (e.g., semi-trucks) - peak hour traffic vehicle mix (cars, medium trucks, heavy trucks).

Conditions, like a steep incline, that causes heavy laboring of vehicle engines will also increase traffic noise levels. Other factors also complicate the loudness of traffic noise. For example, traffic noise levels are reduced by distance, terrain, vegetation, and natural and manmade obstacles as a person moves away from a highway. Traffic noise is not usually a serious problem for people who live more than 500 feet from heavily traveled freeways.[1]

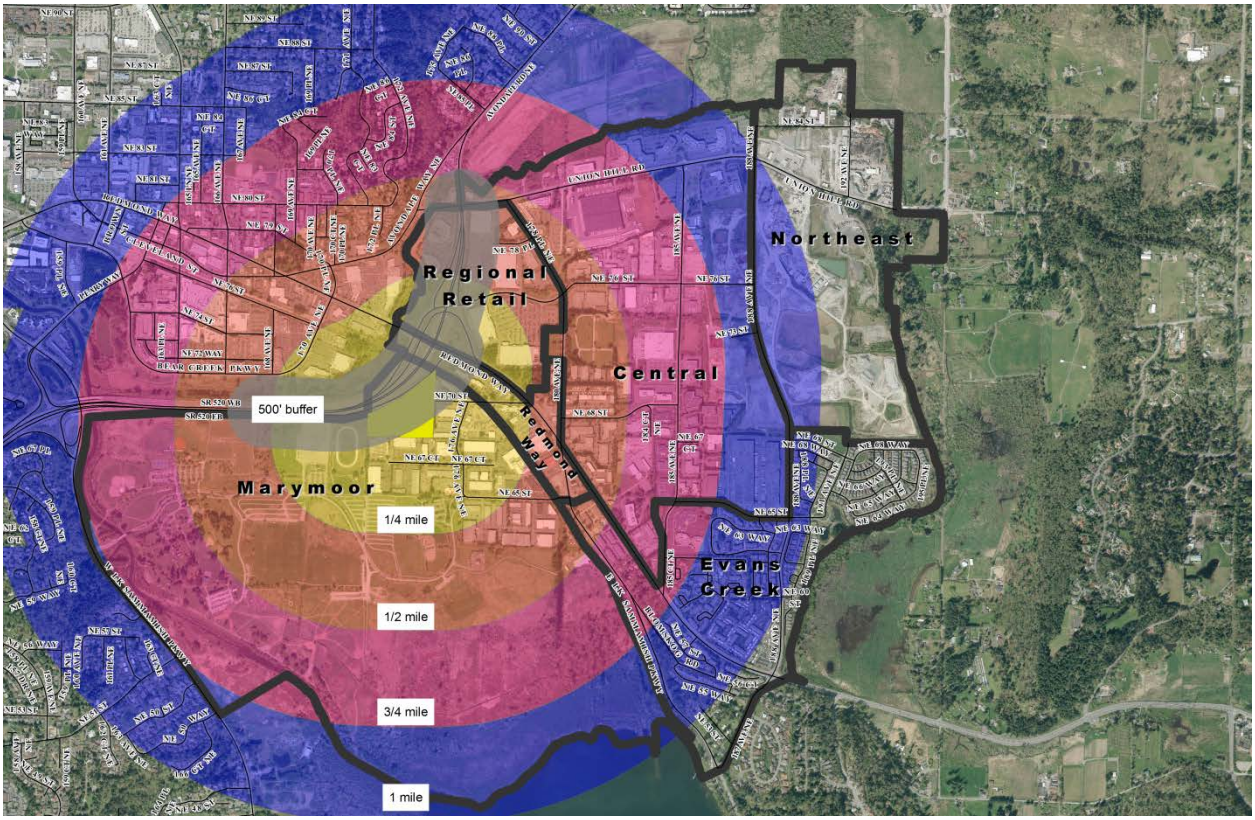
Sometimes, complaints about highway traffic come from occupants of new homes built adjacent to an existing highway. Many highways were originally constructed through undeveloped lands. There are several hundred thousand miles of existing highways in this country bordered by vacant land which may someday be developed. Prudent land use control can help to prevent many future traffic noise problems in these areas. Such controls need not prohibit development, but rather can require reasonable distances, or "buffers," between noise sensitive buildings and roads. Soundproofing or other abatement measures can also lessen noise disturbances. WSDOT can work with local governments on this type of "noise compatible planning."[2]

Sources

1. http://www.wsdot.wa.gov/environment/air/trafficnoise.htm

2. Washington State Department of Transportatino. (2012). *2011 Traffic Noise Policy and Procedures.* Olympia: WSDOT. p. 13.

Distances from Southeast Redmond Light Rail Station and SR-520 Buffer



Magnitude of Park & Ride Traffic

The future parking structure associated with the Southeast Redmond light rail station is expected to have 1,400 stalls. Assuming each stall is filled once per day and not accounting for drop-off trips and transit trips, this equates to 2,800 daily trips. That is, very roughly, the number of gross daily trips that would be added due to the parking structure. The net number of trips would be lower because the light rail station and parking structure will replace existing trip-generating uses.

To provide a sense of what that would look like, street segments in Redmond that have about 2,800 daily trips include NE 95th St. east of Avondale Road in the Bear Creek neighborhood and NE 80th St. west of 140th Ave NE in the Grass Lawn neighborhood.