TOD in Philadelphia

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**Topic**: develop a method to analyze the existence or potential of TOD in Philadelphia (city propoer? MSA? Montgomery County only? Camden County only?)

* I may consider doing only suburban counties for their proximity to PHL and job attraction areas within the county (KOP, Conshohocken in Montgomery County).

**Background**

<https://urbanspatial.github.io/PublicPolicyAnalytics/TOD.html>

Philadelphia has its own subway and regional rail systems built over a century ago. However, according to analysis, only certain parts of the city served by rail transit had a positive impact brought by TOD. Other parts of the city served by subways, like West and North Philly remains unchanged compared to non-TOD communities.

<https://www.dvrpc.org/webmaps/TOD/>

DVRPC did produce a map showing the TOD indexes for all major rail transit stations in the Philadelphia MSA.

Factors includes:

* Transit Service Quality: in TCI Score
* Job Access: number of jobs accessible within 30-minute transit ride
* Travel Time to Philly: transit time to auto travel time ratio
* Population density in half-mile radius
* Car Ownership
* Non-Car Commuters
* Walk Score

It also measures stations’ future potential to develop new TODs

* Recent Development Activity
* Commercial rent and residential rent
* Available Land

However, it does not include the factors like safety, existing demography that will affect the feasibility of transition and may cause gentrification.

<https://whyy.org/articles/council-proposes-zoning-changes-to-drive-transit-oriented-development/>

This map shows possible stations could be used for TOD-development in Center City, but it only considers rail accessibility.

**Assumptions**

* I can rezone, upzone, redevelop parcels based on my analysis of parcels’ existing conditions
* New TOD projects will require affordable housing quotas
* TOD buffers will have perfect walking and cycling infrastructure eventually
* The transit service to Center PHL will be improved (more frequencies, express services) if I choose to do suburban counties

**Criterias (TBD) and Deliverables**

Before the analysis for TOD, a prediction of potential population trend in the future will be conducted.

The TOD index will be calculated based on a combination of differently weighted factors.

For assessing TOD potentials:

* Factors used by DVRPC (mentioned above)
* Will not include Center City and University City
* With existing high-density housing (apartment) but limited commercials
* stations with large vacant/underused parcels (e.g. parking lot, buildings in bad conditions)
* served by high-frequency bus routes/with a lot of bus routes
* For BSL, stops with express services will be weighted more.

Once the potential study is finished, I am also going to conduct feasibility study that will identify which potential TOD-stations will take least governments’ effort to redevelop/having minimum gentrification.

* Safety (Crimes and Police Station)
* Demography (race, income etc.) within and outside TOD buffer
* School Districts
* Gaps in walking and biking infrastructure

**Data Sources**

* DVRPC (for their TOD index and factor score)
* OpenPhillyData
  + ACS/Decennial Census/Tidycensus
  + Parcel (zoning, building type and age)
    - Building information?
  + Crime Incidents
  + School districts
  + SEPTA, PATCO rail stations
  + Bus
  + Road
  + INDEGO stations

**Software**: R, ArcGIS, Excel (for simple projections)

**User Case**: a memo/report for local government to identify possible TOD locations and their feasibility to be redeveloped and renewed.