MPC’s TOD Calculator:
Using open data to evaluate the impact of new construction near transit

Yonah Freemark
June 10, 2016
What is Transit-oriented development?

- Fast, competitive transit in many directions
- Mixed-use development
- Housing for multiple income levels
- Access to community services and resources
- Walkable, landscaped streets
Benefits of development near transit

- People who live and work near transit drive 40% less than others.
- Residential property values near rapid transit outperform those of others by 40%.
- Low-income residents near rapid transit have access to 25 to 50% more jobs.

U.S. Census 2010
Grow Chicago: Civic data to inform TOD
Design decisions

**Scoping document:** July 2014

**Initial Excel model:** August 2014

<table>
<thead>
<tr>
<th>TOD Model</th>
<th>Staff: Cheyney Marzini, Brenna Gula, Yong He, Cara Coyle, Taylor McAuliffe, Jenny Murray</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale:</td>
<td>Land near transit is our region’s most under-utilized asset. Maximizing its use, New construction at higher densities produces significant positive benefits for transit riders including improved accessibility, the local business base, regional environmental conditions and tax revenues. A data-driven approach to understanding those benefits in the context of both community and regional development is essential to promoting these types of projects.</td>
</tr>
</tbody>
</table>
| Policy Goals: | Increasing housing and commercial density near transit  
- Offering a mix of affordable and market-rate units. By concentrating the region’s housing stock growth in areas adjacent to transit stations, the Chicago region will develop in a more sustainable manner that prioritizes transit use, reduces overall household expenses and limits negative effects on the environment due to transportation-based emissions.  
- Neighborhoods near transit should be designed to provide housing affordability for people across the income spectrum, so as to guarantee that the benefits of transit are shared equitably.  
- The parcels near transit stations should encourage a mix of land uses so as to ensure access to commercial needs as well as public services, creating a node of activity in each neighborhood.  
- The goal of increasing density will require certain improvements to the City of Chicago’s TOD Ordinance, and new approaches to zoning regulations in suburban jurisdictions.  
- Doubling Chicago region transit ridership by 2040  
- Land use and transportation affect each other directly, with dense development spurring more transit use and better transit use spurring denser development. One way to increase the use of our region’s public transportation system—a regional goal—is to increase housing and commercial densities in areas near transit, a proven way to increase ridership.  
- Providing increased knowledge to communities, developers and the public sector  
- As development plans for specific sites are developed and discussed, the benefits and pitfalls of projects are used to justify promoting projects or encouraging changes to plans. These discussions would be better informed with quality, quantified information about how a specific project would change the surrounding area. Increasing the type of information would serve a useful purpose in helping to |
## Explore the impact of TOD

Disclaimer: This tool is meant to demonstrate hypothetical scenarios and is not meant to replace extensive research about how effective transit-oriented development could benefit a specific area. The information provided by this tool is based on estimates.

### Retail space (sq ft)

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Allowed</th>
<th>Proposed</th>
</tr>
</thead>
</table>

### Office space (sq ft)

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Allowed</th>
<th>Proposed</th>
</tr>
</thead>
</table>

### Residential units

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Allowed</th>
<th>Proposed</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Area of improvement</strong></th>
<th><strong>Current</strong></th>
<th><strong>With TOD</strong></th>
<th><strong>Proposed TOD</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>🛍 Annual local retail sales</td>
<td>$$$</td>
<td>$$</td>
<td>$$</td>
</tr>
<tr>
<td>🏥 Tax revenue</td>
<td>$$</td>
<td>$$</td>
<td>$$</td>
</tr>
<tr>
<td>🚗 Cars added to neighborhood</td>
<td>##</td>
<td>##</td>
<td>##</td>
</tr>
<tr>
<td>🚗 On-site jobs</td>
<td>##</td>
<td>##</td>
<td>##</td>
</tr>
</tbody>
</table>
Growing near transit benefits us all

Development near transit helped double Chicago’s downtown population between 2000 and 2010—even as the city as a whole lost population. By building new opportunities for people of all incomes to live, work and shop near transit in neighborhoods across the city, we can grow Chicago and give more Chicagoans excellent access to high-quality schools, jobs, retail and parks.
Grow Chicago

Explore the benefits of new development near transit

See how development near transit can benefit you and your community through economic development and jobs, more revenue for schools and essential city services, and better transportation access. Select any parcel from the map below or search for an address.

2571-2585 N Linden place

Start from scratch if your development proposal does not have a specific address.

2559 N Linden Pl
Logan Square, 23,486 sq. ft., Zone: B3-3
More information »
Grow Chicago

2571-2585 N Linden Pl
Chicago, IL 19,867 sq. ft. Zone B3-3 824 feet from CTA Blue Line Logan Square Station

MPC’s proposed TOD incentives would qualify this parcel for increased density and reduced parking.

Explore the effects of TOD

Use the sliders below to design your own proposal and see the benefits of dense, mixed-use development near transit or Start from scratch.

<table>
<thead>
<tr>
<th>Retail space (sq. ft.)</th>
<th>Commercial space (sq. ft.)</th>
<th>Residential units</th>
</tr>
</thead>
<tbody>
<tr>
<td>9370</td>
<td>9370</td>
<td>49</td>
</tr>
</tbody>
</table>

Estimated building stories: 4

Your proposal is about as dense as a typical Chicago courtyard building.

Parking required by zoning: 49

Commercial estimated parking demand: 7
Residential estimated parking demand: 26

<table>
<thead>
<tr>
<th>Community impact</th>
<th>Potential under current zoning</th>
<th>Your proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual local retail sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New development brings more residents and workers to a neighborhood, increasing sales for all local businesses. More »</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$584,200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax revenue (over 10 years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax revenue supports the public services that keep our city running: schools, streets, police officers, parks and transit. More »</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1,932,100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On-site jobs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development near transit helps to create jobs—and provides people with better access to jobs across the city and region. More »</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More housing units generate more tax revenue, and more people living near transit can access jobs more easily. More »</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td></td>
<td></td>
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</tbody>
</table>
Simplified Calculator model

Open data from Chicago, Cook, etc

Chicago Cityscape
API for geolocation, TOD status, zoning, community area, parcel size, etc

Census, academic research, etc

Webitects database
Site uses, potential construction, parking, demographics, sales, taxes, etc

User selects parcel

Initial outputs

User "designs" project

"Your proposal"
Backend infrastructure

- Mapbox free tier
- Map layers: openstreets + chicago parcels + cta/metra
- Policy data stored in flat files for easy manipulation
- Images available from public city data
How has the TOD Calculator been used?

- Aldermen looking to evaluate the outcomes of projects in their communities.
- Developers advocating for their projects and looking for potential development sites.
- Community groups weighing the pros and cons of possible projects.
Thanks!

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