Land Use
Transport
Access, and
Value

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Access = Land Use x Transport
Accessibility$_i = \sum_j (Opportunities_j \ast f(Cij))$
We can make this as simple or complicated as we like.
Which opportunities?
Which cost \((C_{ij})\)?
Which function \((f)\)
We don’t need to decide arbitrarily.

The market tells us.
The only reason to locate anywhere in particular is:

- to possess resources (mining, farming, etc.)
- to be near something(s)
- to be far from something(s)
Since few of us own mines, especially in the city
The value of land is determined by its proximity to everyone and everything else.
Access creates Value
We measure that value by looking at the price of land.
Price per m² = \( f(\text{Access, Quality, Structures}) \)

Structures = \( f(\text{Price}) \)
Hedonic models let us decompose this

e.g. Each additional job within 20 minutes adds $0.25 to price of a single family home on average in the Twin Cities (all else equal).

- additional job = Opportunity$_j$
- within 20 minutes = f(C$_{ij}$)
Cities are positive feedback loops in space
Figure 4: Transportation and the Montgomery County Growth Management System
In Minnesota

Transportation creates access.

Access creates value.

Landowners receive value.

Insufficient funds for capital investment in transportation.

Landowners receive less value.
Value can be used to fund Transport
Closing the feedback loop in Minnesota

Transportation creates access.
Access creates value.
Landowners receive value.

Fraction of value is captured by infrastructure funding organizations to fund transportation.

Landowners receive more value.
# Models of Provision.

<table>
<thead>
<tr>
<th></th>
<th>Government built</th>
<th>Developer Built</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Publicly Funded</strong></td>
<td>Traditional “free roads”, gas tax</td>
<td>“free roads” with shadow tolls, gas tax</td>
</tr>
<tr>
<td><strong>Developer Funded</strong></td>
<td>Impact fees, special assessment, exactions, land value tax</td>
<td>Road clubs, joint development</td>
</tr>
<tr>
<td><strong>User Funded</strong></td>
<td>Toll roads</td>
<td>Private toll roads (PPP)</td>
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</tbody>
</table>
Questions?

- Planning for Place and Plexus
- The Transportation Experience
- Access to Destinations

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