A FIELD GUIDE TO TRANSIT QUARRELS
About this presentation

- This presentation was developed by Jarrett Walker of HumanTransit.org and first presented in January 2010.

- Mr. Walker is available to adapt and present this material as desired, at reasonable rates reflecting travel costs and time. He can be reached via the email button on HumanTransit.org, or at jarrett@jarrettwalker.net
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- **San Francisco**: SPUR (San Francisco Planning and Urban Research). Spur.org.
- **Portland**: Metro (Regional Government) and its CEO David Bragdon. Metro-region.org
- **Seattle**: Great City. Greatcity.org
- **Vancouver**: Simon Fraser University City Program. www.sfu.ca/city/
The Field Guide as Metaphor

- Suggests some categories for organizing the apparent chaos of nature.
- Offers tips for identifying each category.
- Explains how these categories are related to each other.
- Describes but doesn’t judge or recommend.
The Chaos of Transit Claims

Rail has to go right to the airport terminal!

These people won’t ride with those people!

People like me just won’t ride buses!

They have streetcars, so we should too!

Rail stimulates development!

Transit should be slower, because the world is just moving too fast!

Frequency matters more than speed!

People won’t transfer!

If transit ran faster, people would ride!

Speed matters more than frequency!
Geometry / Math

2 + 3 = 5

Physics

Electricity and fossil fuels are both ways of storing energy.

Biology

A mammal’s need to consume water increases with temperature

Psychology

Humans tend to underestimate the rationality of the actions of others.

Culture

Most middle-class Americans hate riding buses.

Our Feelings

Everyone I know hates riding buses!

My Feelings

I hate riding buses !!!!

A Spectrum of Authorities
Geometry / Math

2 + 3 = 5

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COLD

HOT
Humans tend to underestimate the rationality of the actions of others.

“Los Angeles is a car culture.”

Scientific facts will prevail over higher, more subjective ones.
In mixed traffic, many situations will trap a streetcar that do not trap a bus. Drivers are more likely to give way to streetcars than to buses. Streetcars signify permanence, whereas a bus route can change. Rail offers a more comfortable ride. Simply replacing buses with streetcars is not a mobility improvement. Or consider urban streetcars... I love how streetcars look and feel!
We are always trying to get this balance right, because great ideas need both.
And we are always negotiating with NIMBYism, and conservatism in general, because those feelings are about HOME.
Unreliable, intense, real, HOT!

Practicality without vision becomes habit. Too much how, not enough why. The spirit of geometry colonising culture.

- Highway engineering
- Conventional bus ops.

My Feelings
Our Feelings
Culture
Psychology
Biology
Physics
Geometry

Reliable, dull, abstract, COLD
Examples of the habit-driven voice.

- “We followed the manual.”
  - *But is the manual derived from our current values?*
- “We’ve always done it this way, because it works!”
  - *But do you have a noncircular definition of “works”?*
Vision without practicality leads to boondoggles. Projects driven by excitement, over-ruling practical concerns. Results disappointing.

• Personal Rapid Transit
• You can think of others ...
“A passenger vehicle that travels a mere ten miles per hour, such as the New Orleans streetcar, may be anathema to current transportation ideology. ... Time that is lost to the destination, however, is time afforded to the passenger to people-watch, window-shop, and sightsee ... A slow-moving transit vehicle adds welcome animation to the street, drawing people to it ...

-- Darrin Nordahl, *My Kind of Transit*
Emotionally intense visions often imagine a finished future, but not a credible path from here to there, either technically or culturally.

- “Slow transit”
- Arcosanti
- Personal Rapid Transit
Often, visions fixate on a transit vehicle rather than the service it’s proposed to operate.
Is vehicle-love always an escape from the present?

- Futurism
- Nostalgia
- Both
Conventional operations and bureaucratic habit. – “Stuck in the present.”

Visionary exciting urbanist thought, – often “Stuck in the future.”

We need more voices in the middle!
For better outcomes, we should start by respecting the universality of transit geometry.

We can try to use the rush of excitement about a project to over-rule geometry, but in the end it will only work if the geometry works.
This looks like it does everything!

But the geometry of transit says that branching divides frequency, so it will really be one of these:

(Narrow line has half the frequency of wider line.)
Some Cold, Boring, Sexless and Inescapable Laws of Transit Geometry
Some laws of transit geometry

- Branching cuts frequency in half.
- Line spacing. Parallel lines too close together will compete with each other.
- Connections. If you oppose requiring connections (transfers), you are also opposed to frequency and network simplicity.
- Density and demand. Double the density → More than double the transit demand.
- Transit technology choice often makes no difference to mobility outcomes. Speed, reliability and frequency are usually unrelated to technology.
Law of Line Spacing

Parallel lines that are too close together will compete with each other. For maximum frequency, consolidate them into one.

I love the 26-Valencia! I don’t want to walk to Mission!
If you oppose transferring, you are also opposing **frequency** and **network simplicity**.

But I don’t want to transfer! I like my direct bus/train!

People hate to transfer!
A network designed for maximum frequency and simplicity also requires connections.

If you try to eliminate connections – by providing through services – you make your network less frequent and more complex.

So it’s a choice ...

Hard Choice: Do we want low frequency, high complexity, but no need to transfer?
Law of Connections: Illustrated
Compare Sydney and Portland
Many routes on each street.

One route on most streets.

Few routes overall.
Frequent grid lines with connections serve some CBD-oriented travel:

← Direct CBD service from most everywhere.
Simple to remember:

- Few routes
- Routes associated with major streets

← Too complicated for someone to remember it all.
Law of Density and Demand

In the range of densities that prevails in North America, doubling the density will more than double the transit demand.

Hard Choice: Should we deploy our service along the same curve?
What if we listen to the geometry first?

This is what “manuals” do at their best: Give everyone a common framework in the unavoidable geometry that will affect ANY project.
Some ways forward

- Transit agencies should consider forms of presentation that emphasise the usefulness of service rather than the technology used to provide it.

- We need simpler and more accessible manuals of the basics of transit geometry.
But above all, think about where on this spectrum a claim lies. Make sure that your hot idea works with the coldest facts, because they always prevail in the end.
Thank you!

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