CITY MATH
Department of Mobility and Infrastructure
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WHAT IS THE PROBLEM YOU ARE SOLVING FOR?
How do we use **SPACE**?
What do we most **VALUE**?
SPACE+THROUGHPUT

Lane Processing Capacity
500 – 800 vehicles/lane/hour
800 – 1,200 people/lane/hour

Congestion
300 - 500 vehicles/lane/hour
500 - 800 people/lane/hour

Gridlock
LANE PROCESSING CAPACITY

1. Travel speeds
2. Stop controls/intersections
3. Vehicle type / lane management
SPEED AND VOLUME

STOP CONTROLS/INTERSECTIONS

500 – 800 vehicles per lane per hour
VEHICLE TYPE/LANE MANAGEMENT
VEHICLES

• 160 square feet when parked
• 500 square feet when moving at 25 MPH
• 800 – 100 square feet when moving at 40 MPH
• 1.2 to 1.6 occupants per vehicle
• 400+ square feet per person
MICROTRANSIT

- 11 – 15 people per vehicle (fully loaded)
- 10 to 30 MPH (200 – 400 square feet of roadway space)
- 20 - 50 square feet per passenger
MASS TRANSIT

- 300+ people (light rail); 60+ (municipal bus)
- 11 – 15 MPH
- 700 – 1500 square feet of space
- 17 square feet per person
BICYCLES

- 30 square feet space (stopped); 75 square feet space (motion)
- 2 bicycle lanes per travel lane
- 38 square feet per person
WALKING

• 6 square feet while standing
• 12 square feet in motion
• Social cohesion
• Economic activity
• Pleasure
VEHICLE TYPE/LANE MANAGEMENT
IS PITTSBURGH SOLVING CONGESTION WELL?
WHAT IS THE PROBLEM YOU ARE SOLVING FOR?
PITTSBURGH’S MOBILITY PRINCIPLES

1. No one dies or is seriously injured traveling on city streets; (streets and intersections are intuitive to use, even by an adolescent child).

2. Every resident can access fresh fruits and vegetables within 20 minutes travel of home (without the requirement of a private vehicle).

3. All trips less than 1 mile are easy and enjoyable to achieve by non-vehicle travel.

4. The combined cost of transportation, housing and energy does not exceed 45% of household income (for any income quintile).

5. Travel time by mass transit, walking and bicycling is reliable and predictable.
• Three continuous corridors; 7 travel lanes
STRIP DISTRICT

• 5000+ planned or approved parking spaces
• 10 full travel lanes (assuming no other vehicles in the lane)
• Half of all roadway capacity for 4 hours every day
KEEPING FOCUS
TRANSPORTATION DEMAND MANAGEMENT

- Shift mode
- Shift time
- Shift route
- Share resources
- Accommodate needs
- Incentivize change
CHANGE TIME
Spread the peak

VOLUME

TIME

LANE PROCESSING CAPACITY
CHANGE MODE
Higher throughput

500 ft²  = 50 x  = 1 x  = 33 x
1000 ft²
400 ft²
4300 ft²
CHANGE ROUTE
Redistribute demand

3,200 vehicles/hour

3,200 vehicles/hour
• Performance parking
• Parking management district
• Remote parking + shuttle
• TDM + Parking cash out
• Zoning changes (mobility fund)
REMEMBER...IN THE END IT IS ABOUT PEOPLE
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@walk_left