Transportation investments are powerful and far-reaching.

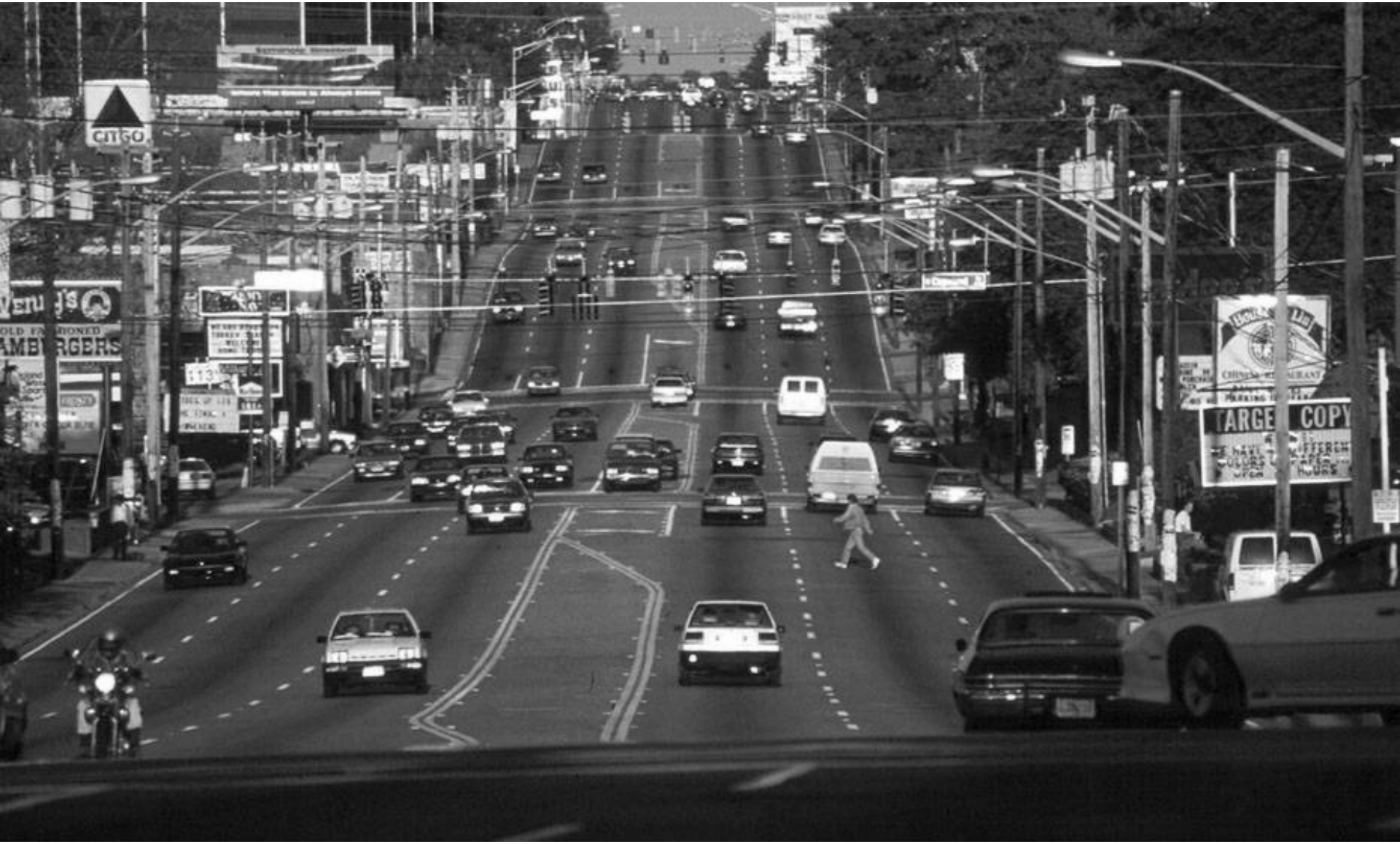
"We're gonna need roads...lots of 'em!"

The Size and Character of Road Influences the Quality of Built Environment

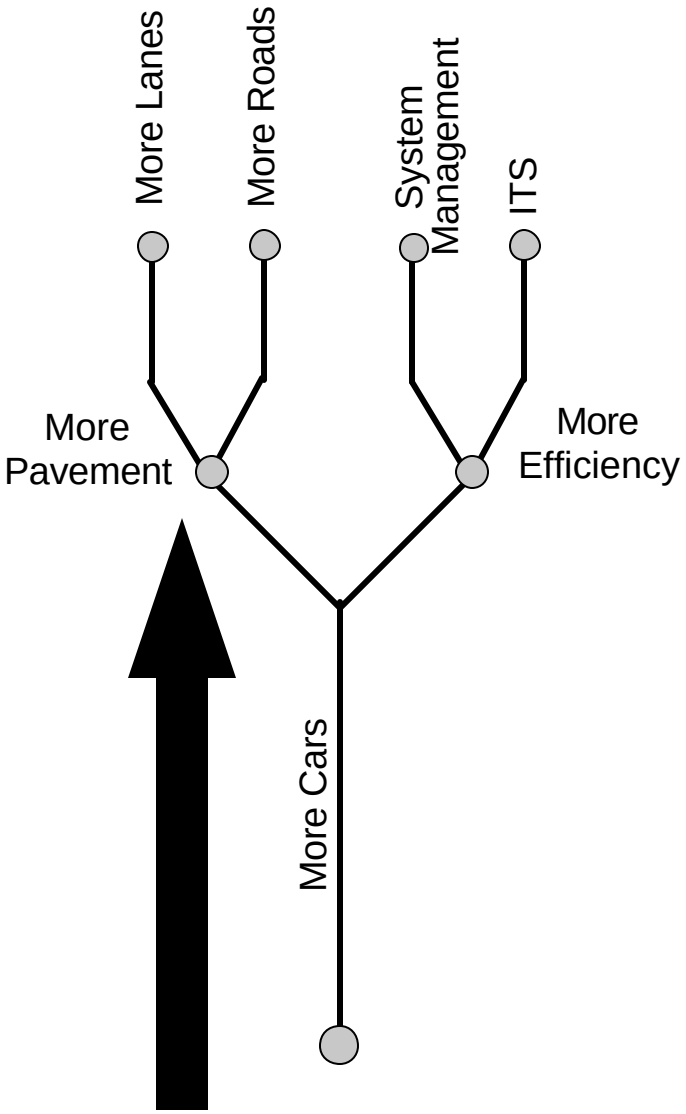
“The problem is people want to go 70 miles an hour. And for what? To get to Saginaw in 7 minutes instead of 10?”

From: Steve Saginaw, MI

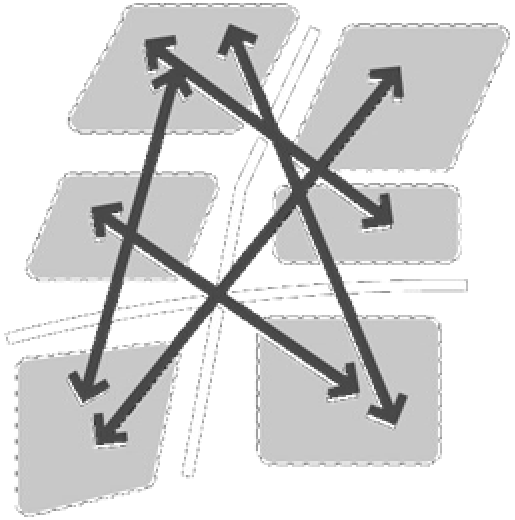
The Size and Character of Road Influences the Quality of Built Environment

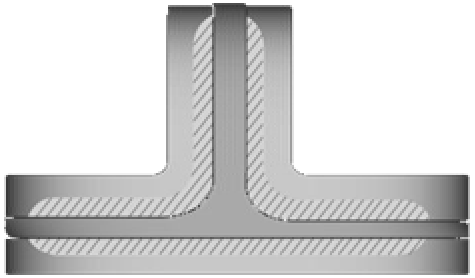


Conventional Approach



Land Use **generates** **Travel** **demands** **Road Capacity**

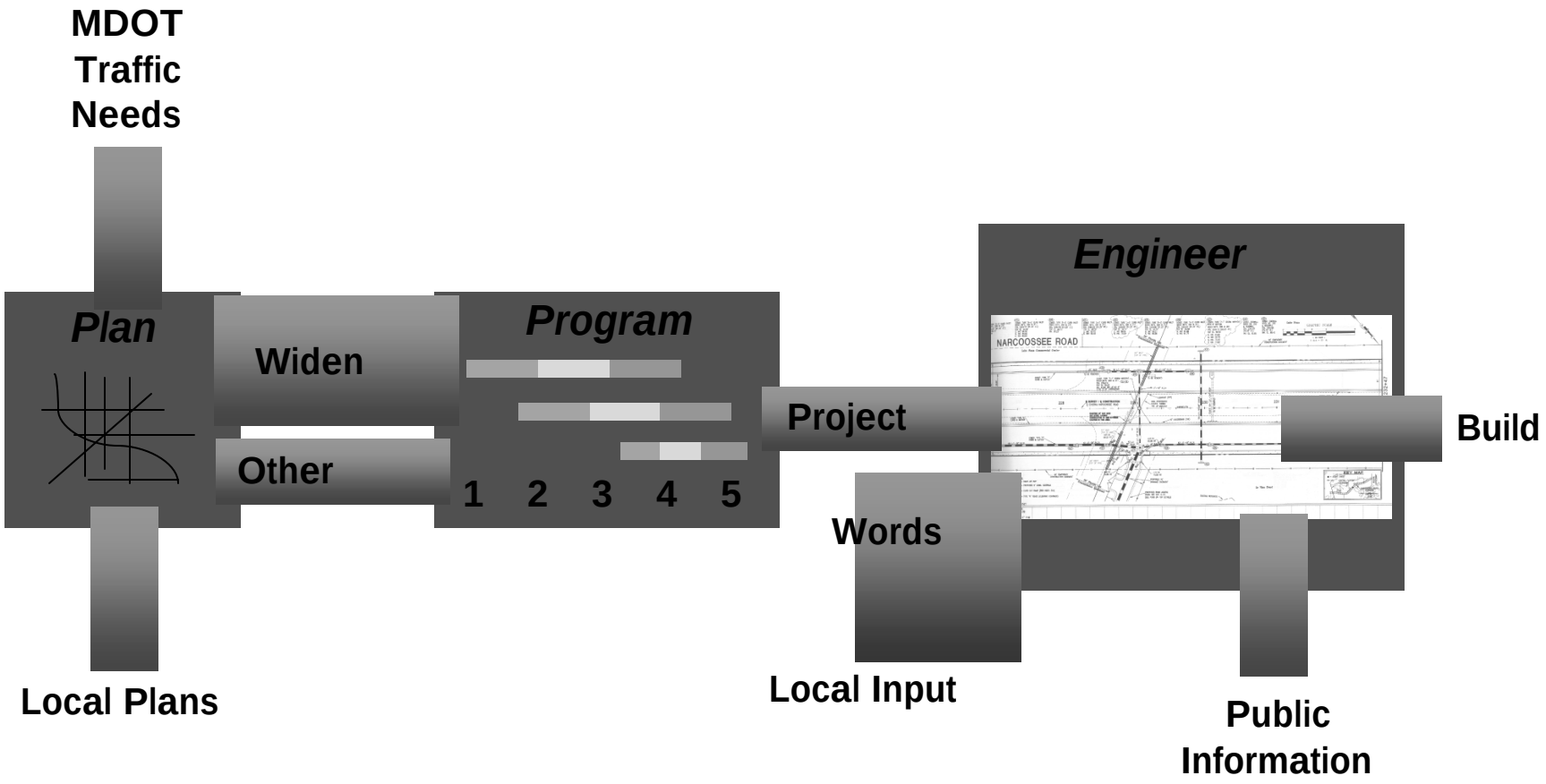




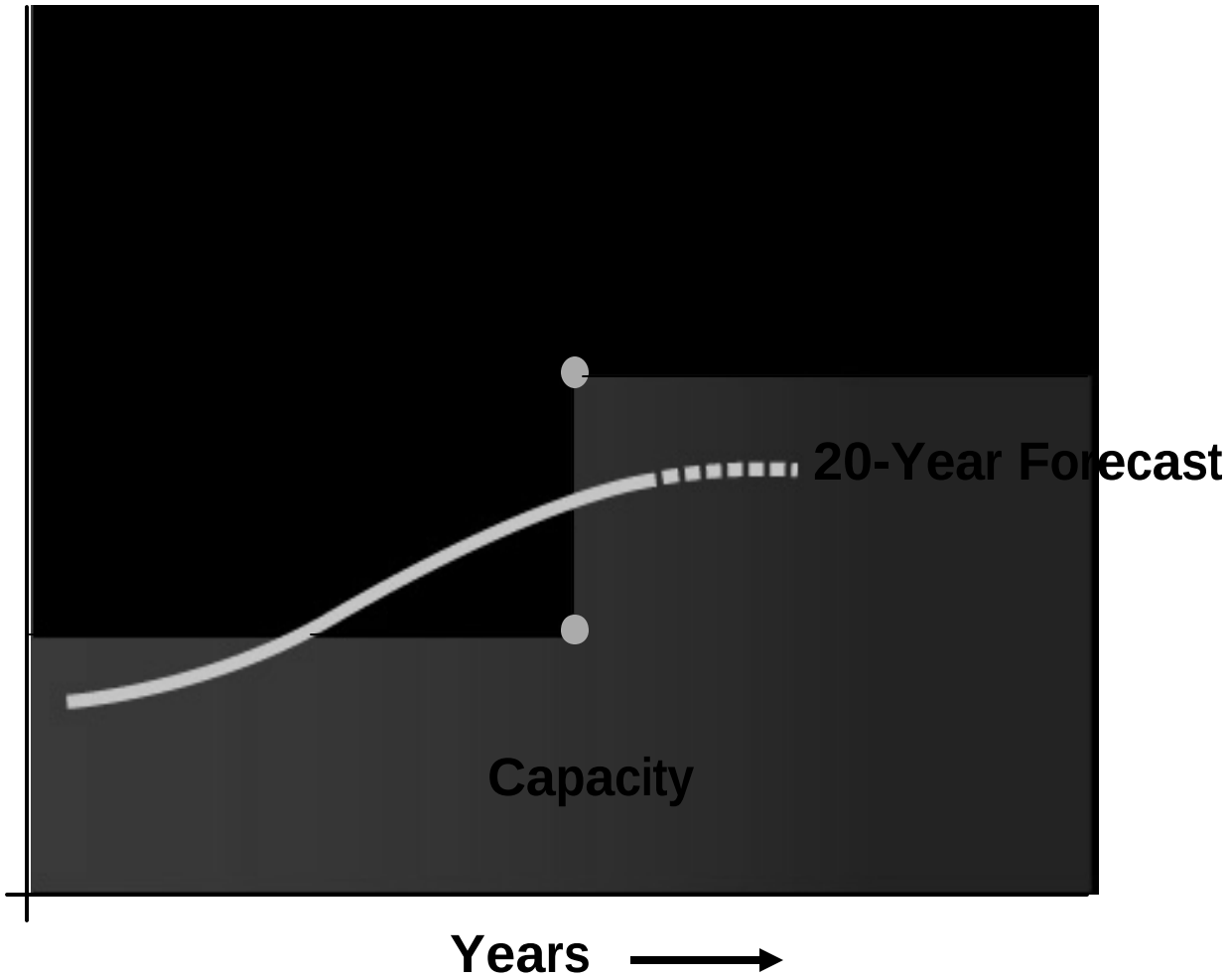
Anticipate

Forecast
(Based on Speed)

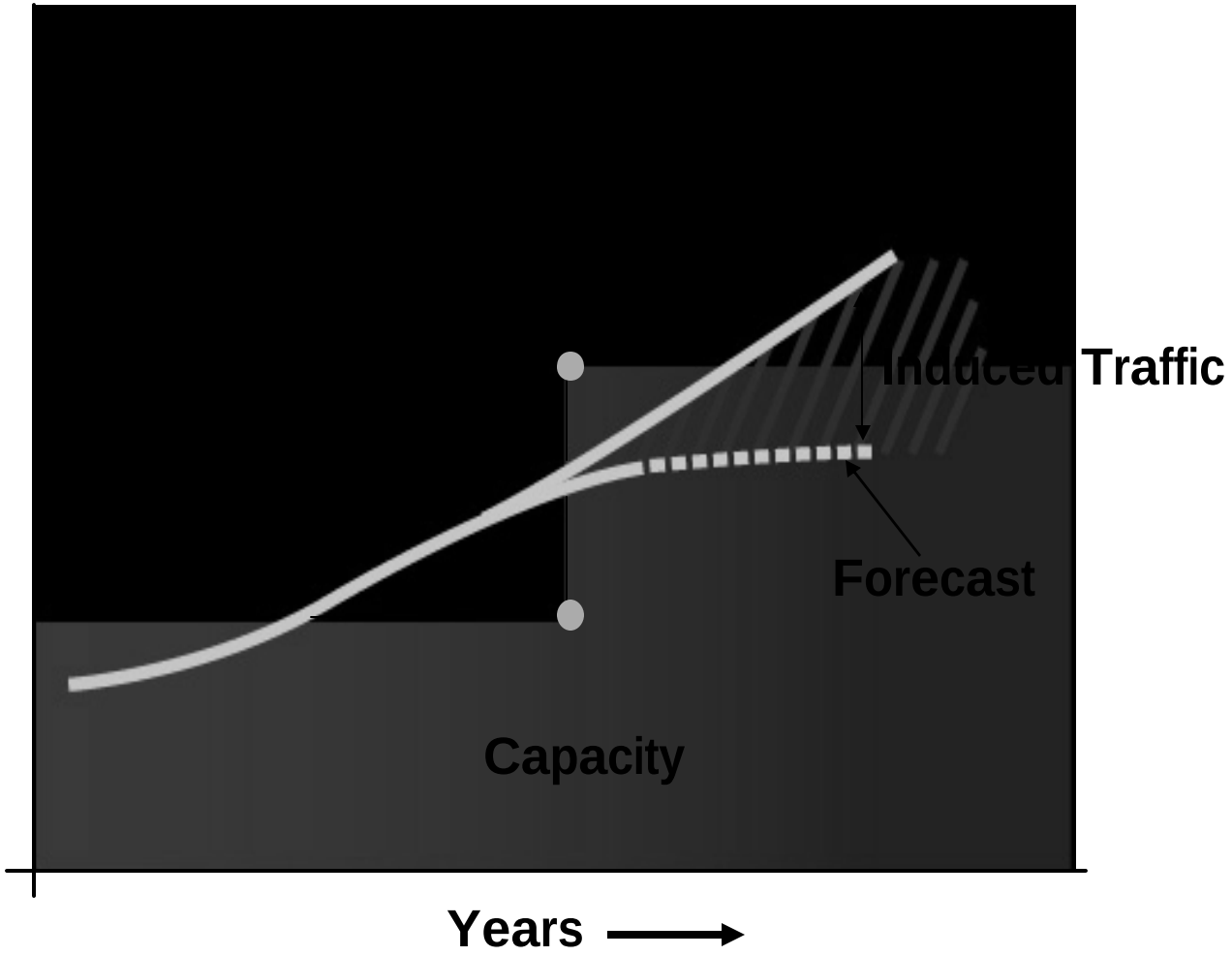
Accommodate


MDOT
Traffic
Needs
Plan
Widen
Other
Program
1 2 3 4 5
Project
Engineer
NARCOOSSEE ROAD
Build
Words
Local Input
Public
Information
Local Plans

Land Use & Transportation – Ideal Traffic Planning



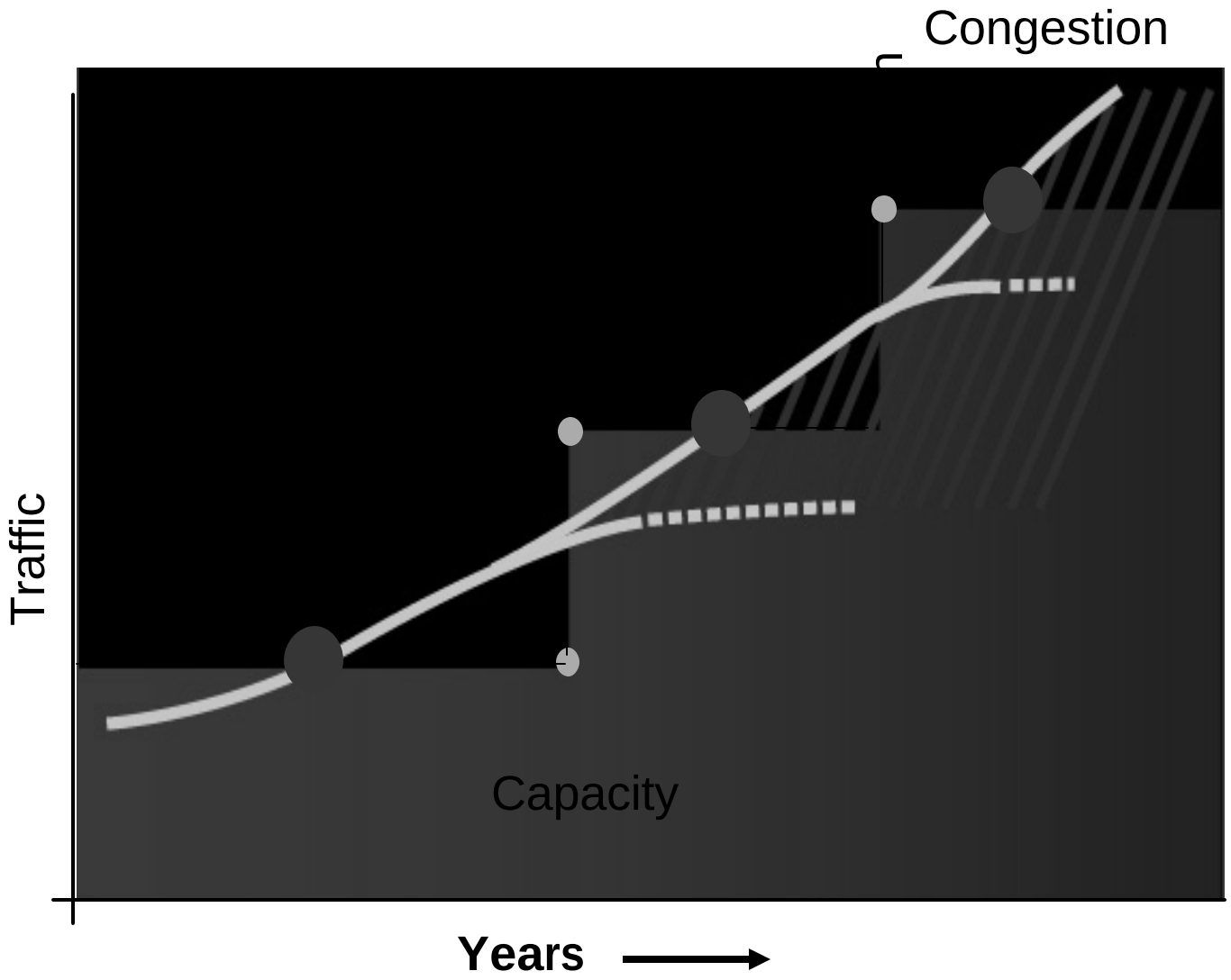
Land Use & Transportation – The Reality



Transportation Investment Change Land Use Patterns

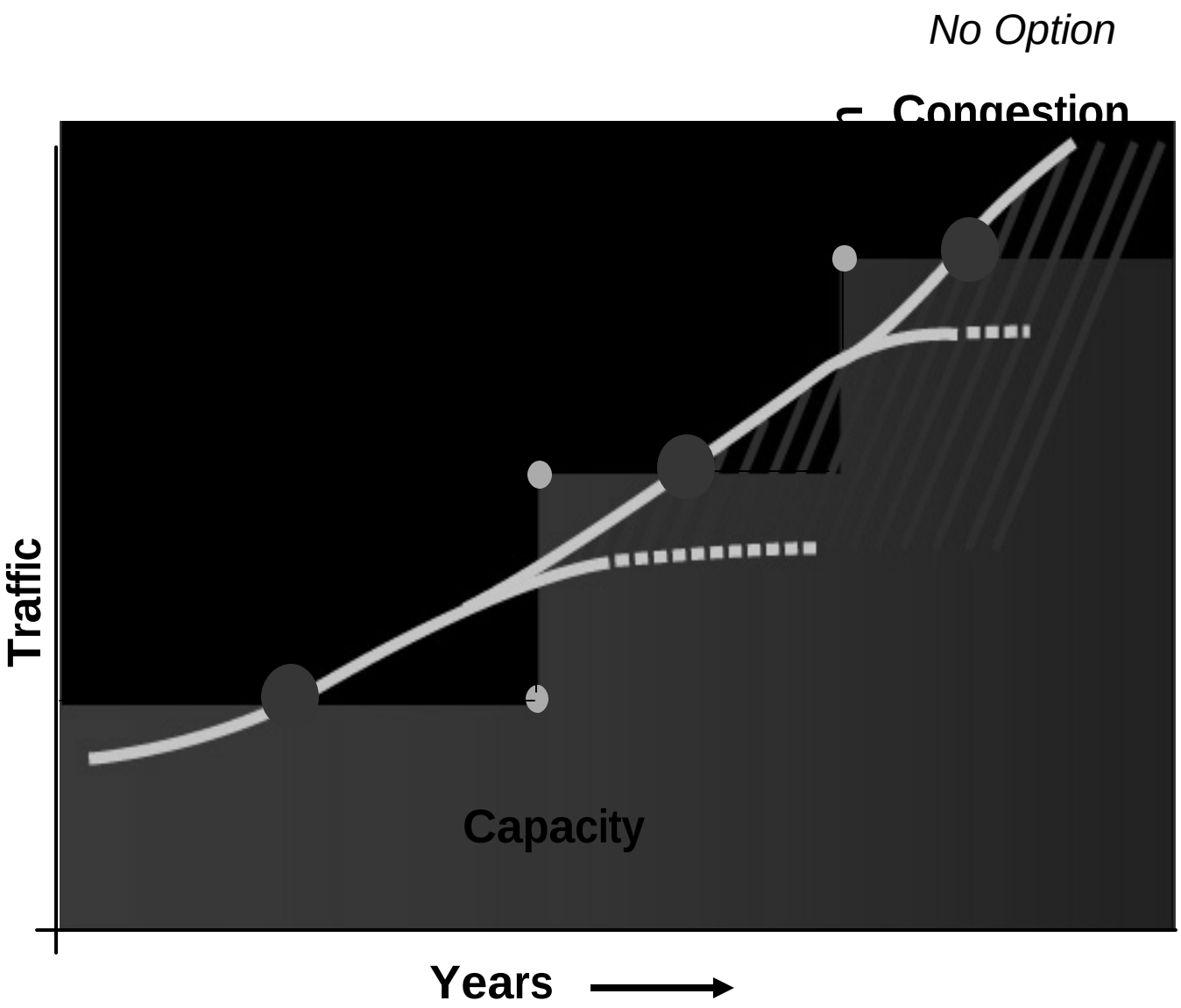
Transportation Investment Change Land Use Patterns

Land Use & Transportation – “Induced Demand”

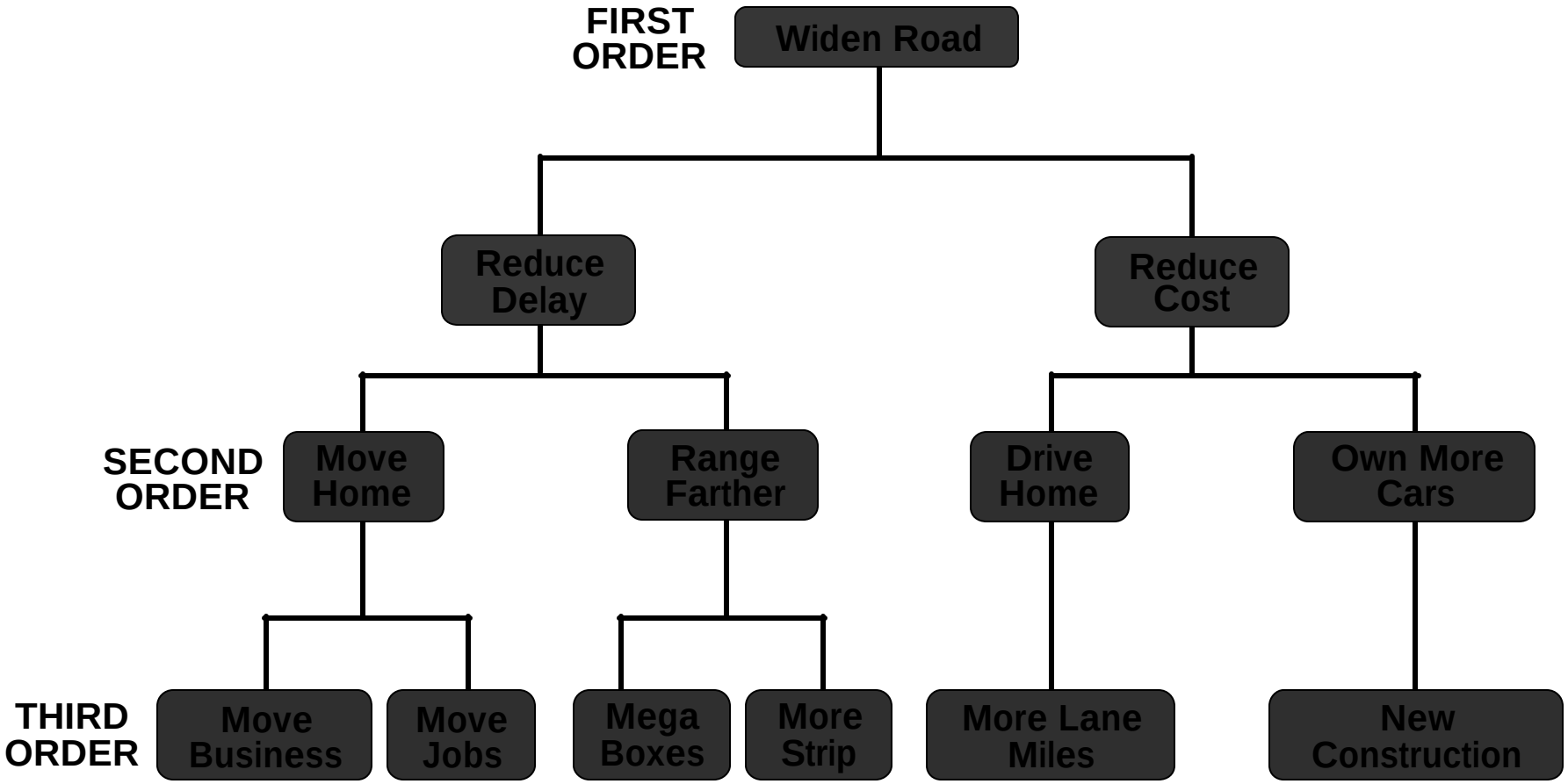



Can't Be "Improved" Further
QUALITY USED CARS
OVER * 150* IN STOCK
COUNTRY KITCHEN

Road Size, Not Congestion, is the Choice



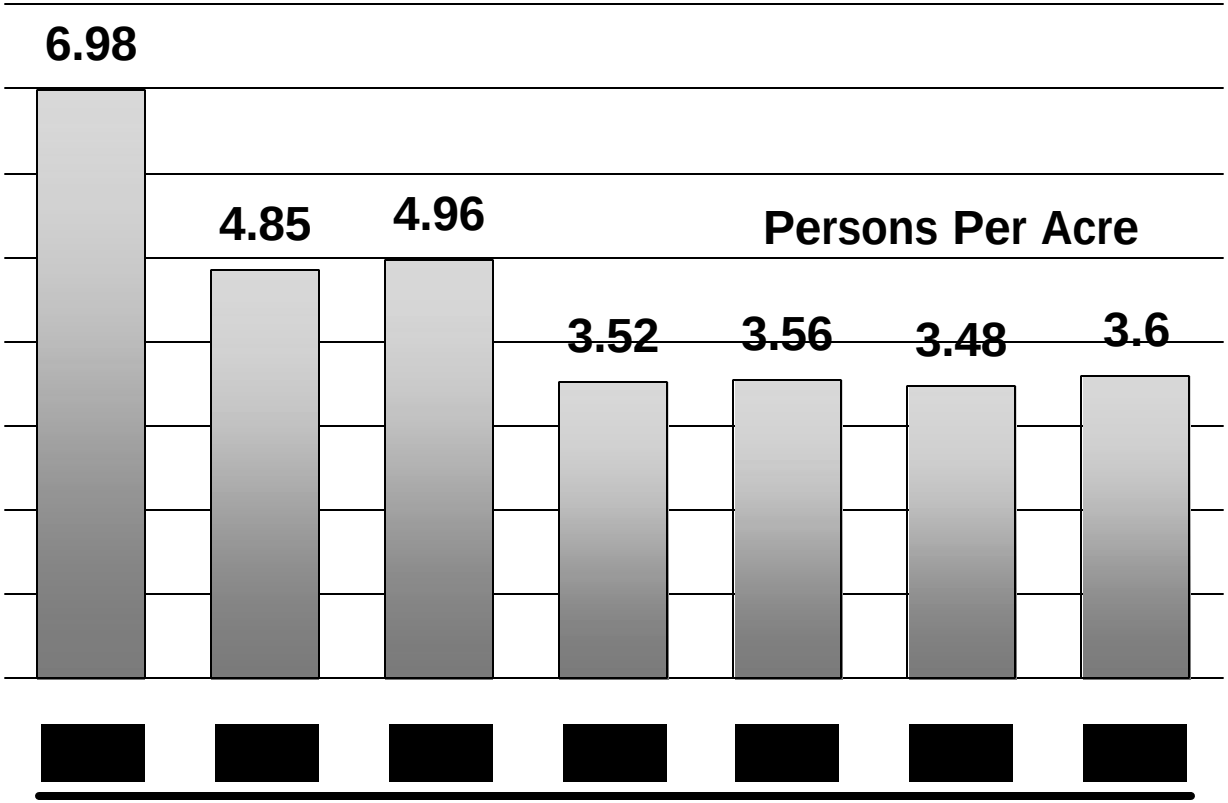
Chain of Impacts



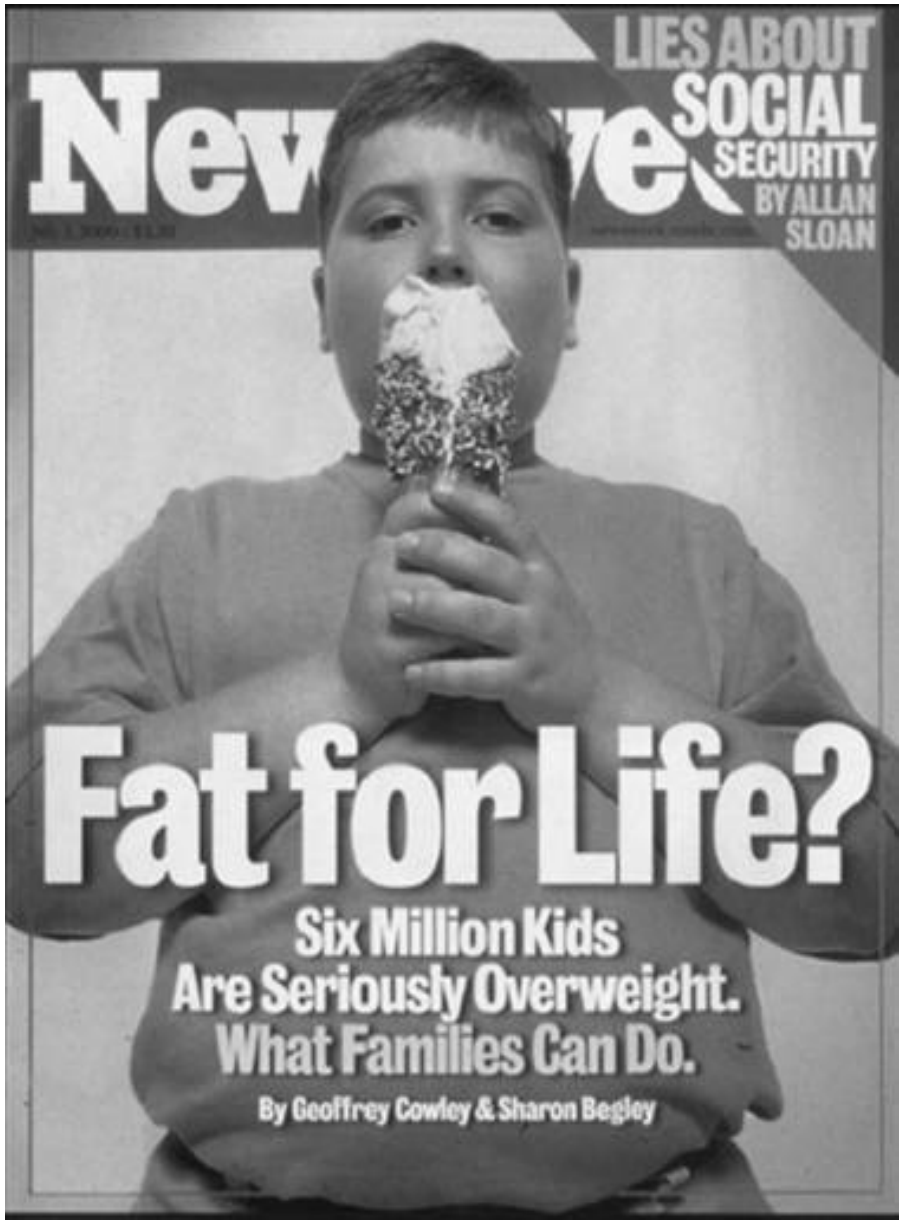
Results Over the Last 50-Years

1) Vehicle Miles of Travel (VMT) Growing Faster Than Population Growth
2) Longer Commute Times
3) Decreased Transit Ridership

Decreased Density . . Increased Sprawl



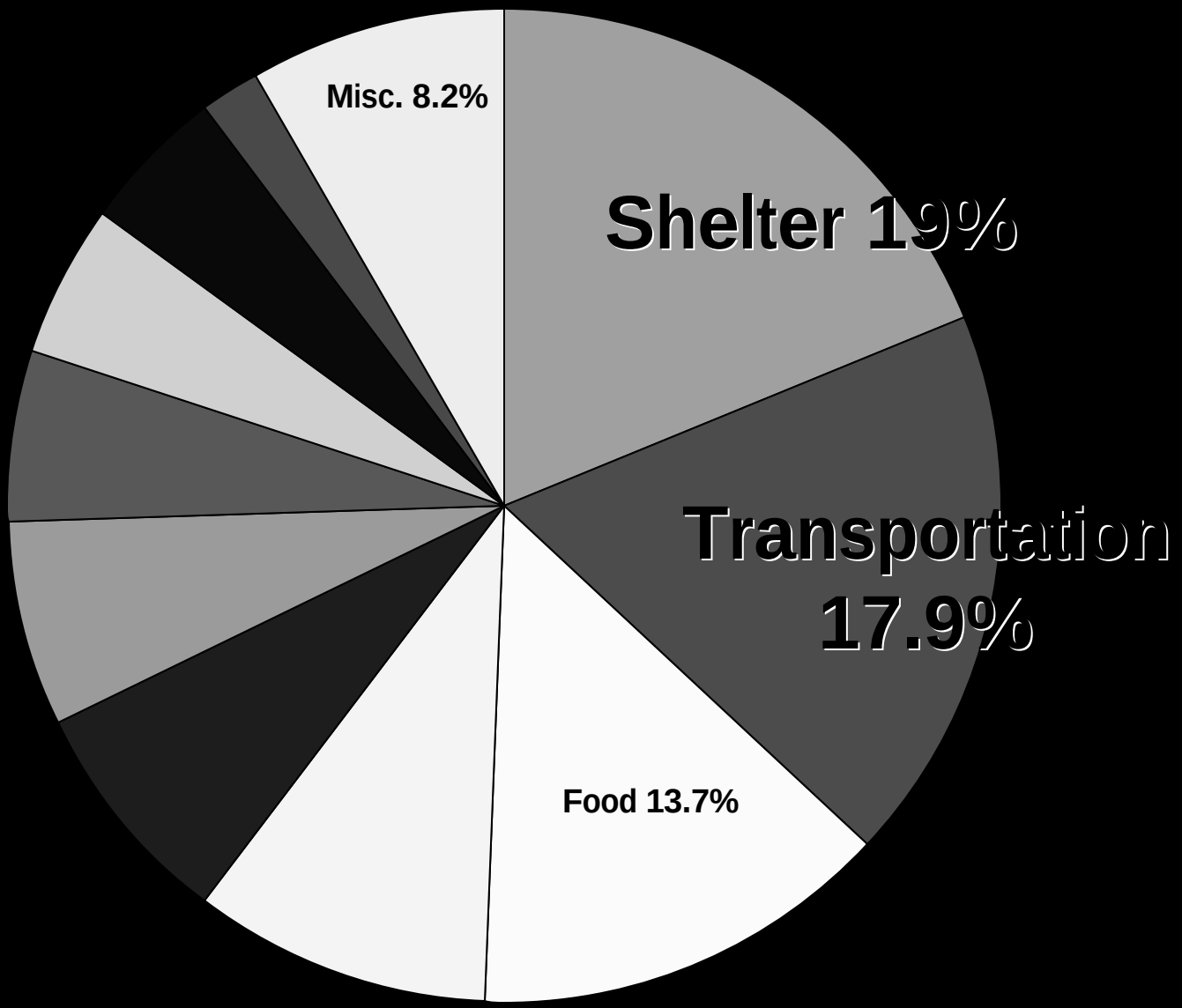
Charlotte's Population Per Acre
1950-2005



The physical impacts of all this inactivity

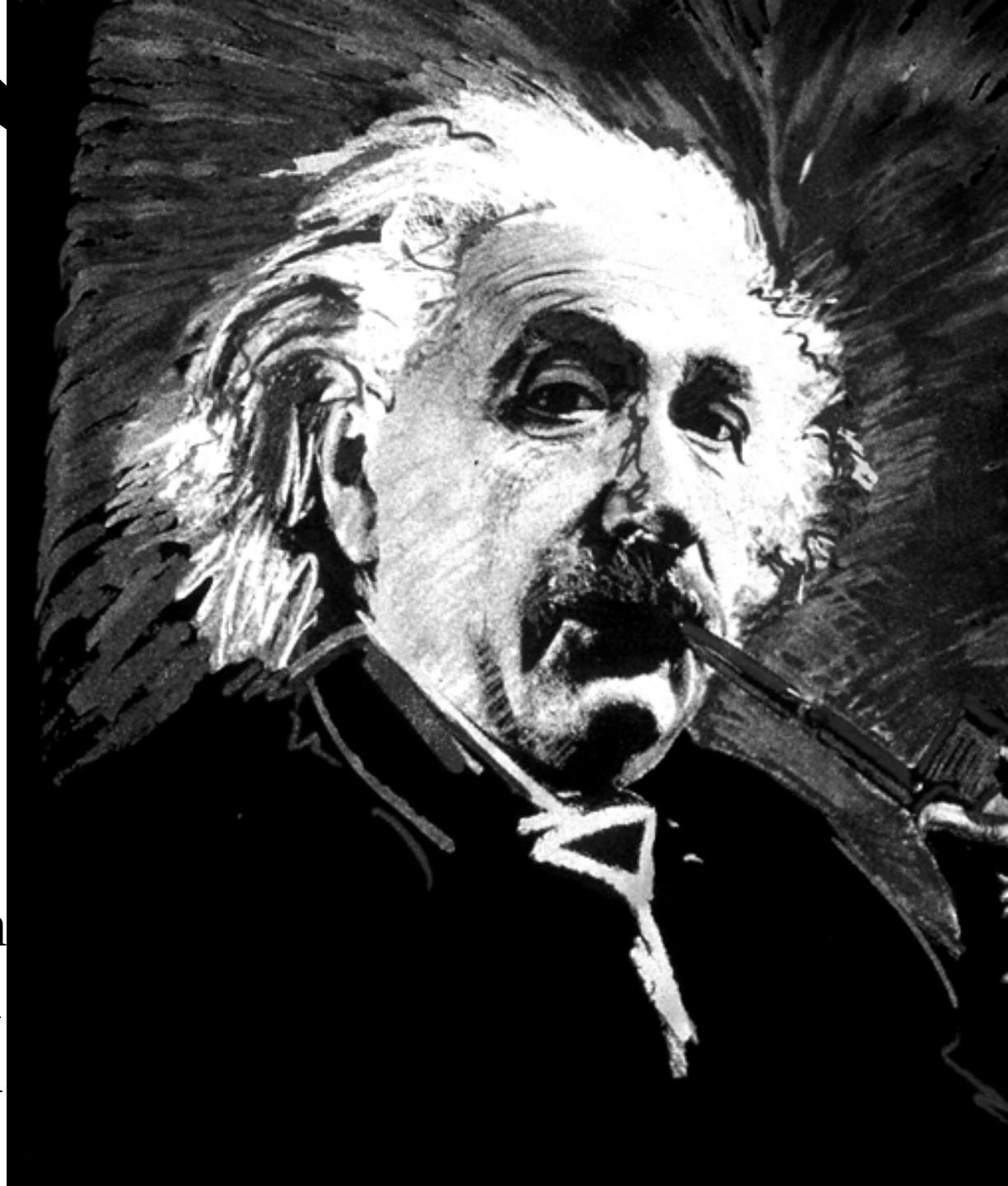
- Increased risk of obesity
- Increased risk of major diseases
  - Diabetes
  - Cardiovascular disease
  - Colon cancer
- Increased symptoms of depression and anxiety
- Poorer development and maintenance of bones and muscles

Health care costs for obesity now top those related to smoking!!!

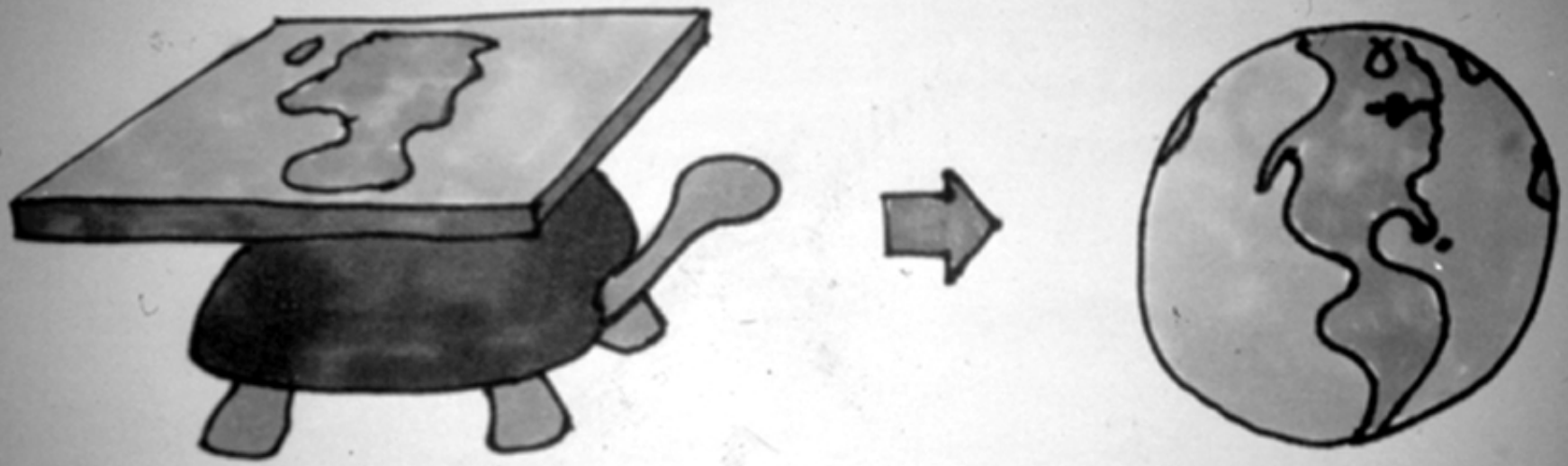

Misc. 8.2%
Shelter 19%
Transportation 17.9%
Food 13.7%

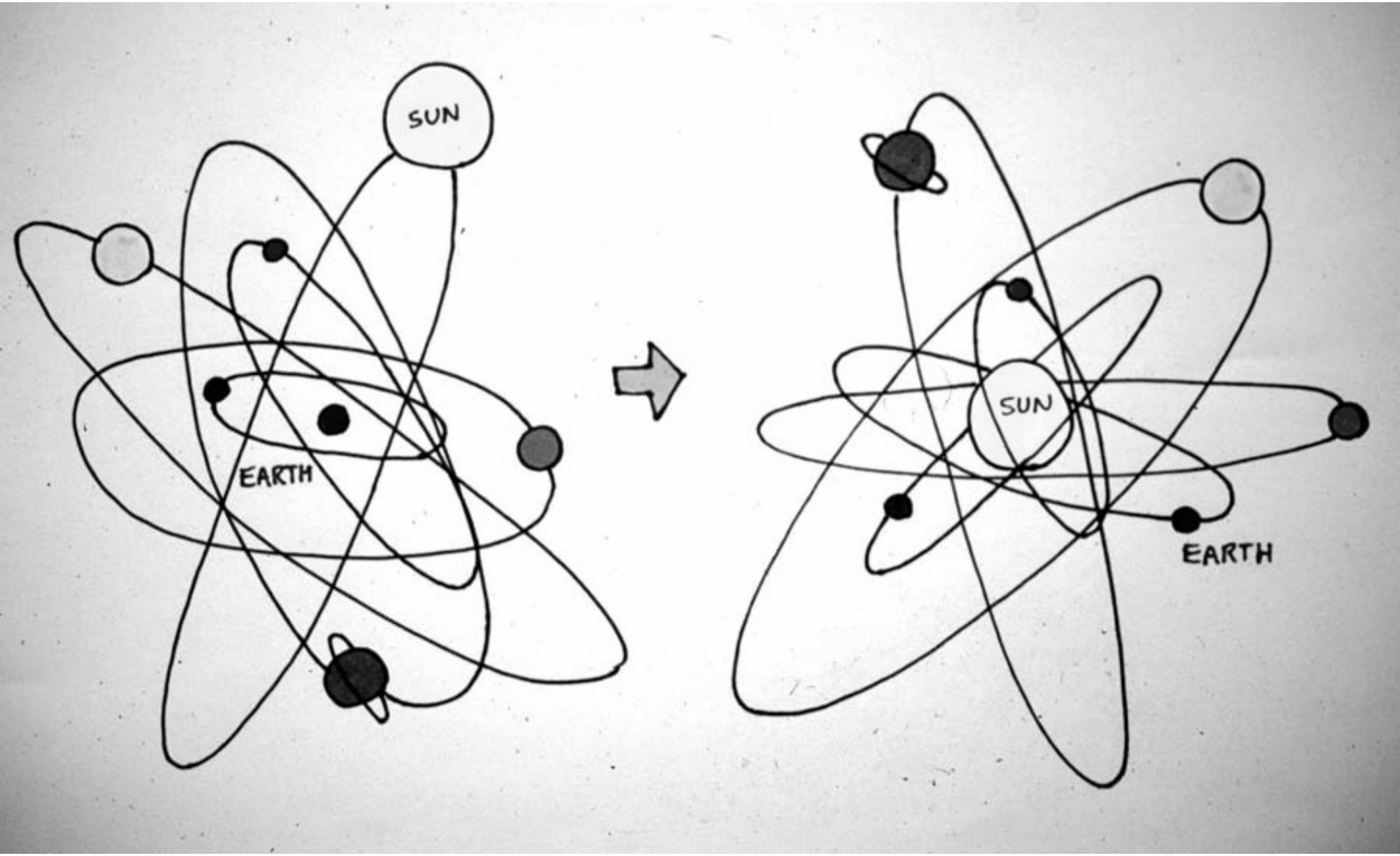

OUR
LADY OF
THE HIGHWAYS
CATHOLIC
CHURCH
MASS TIME
5:30PM SAT 8 & 10:30 SUN
12:30 SUN ESPANOL
STOP

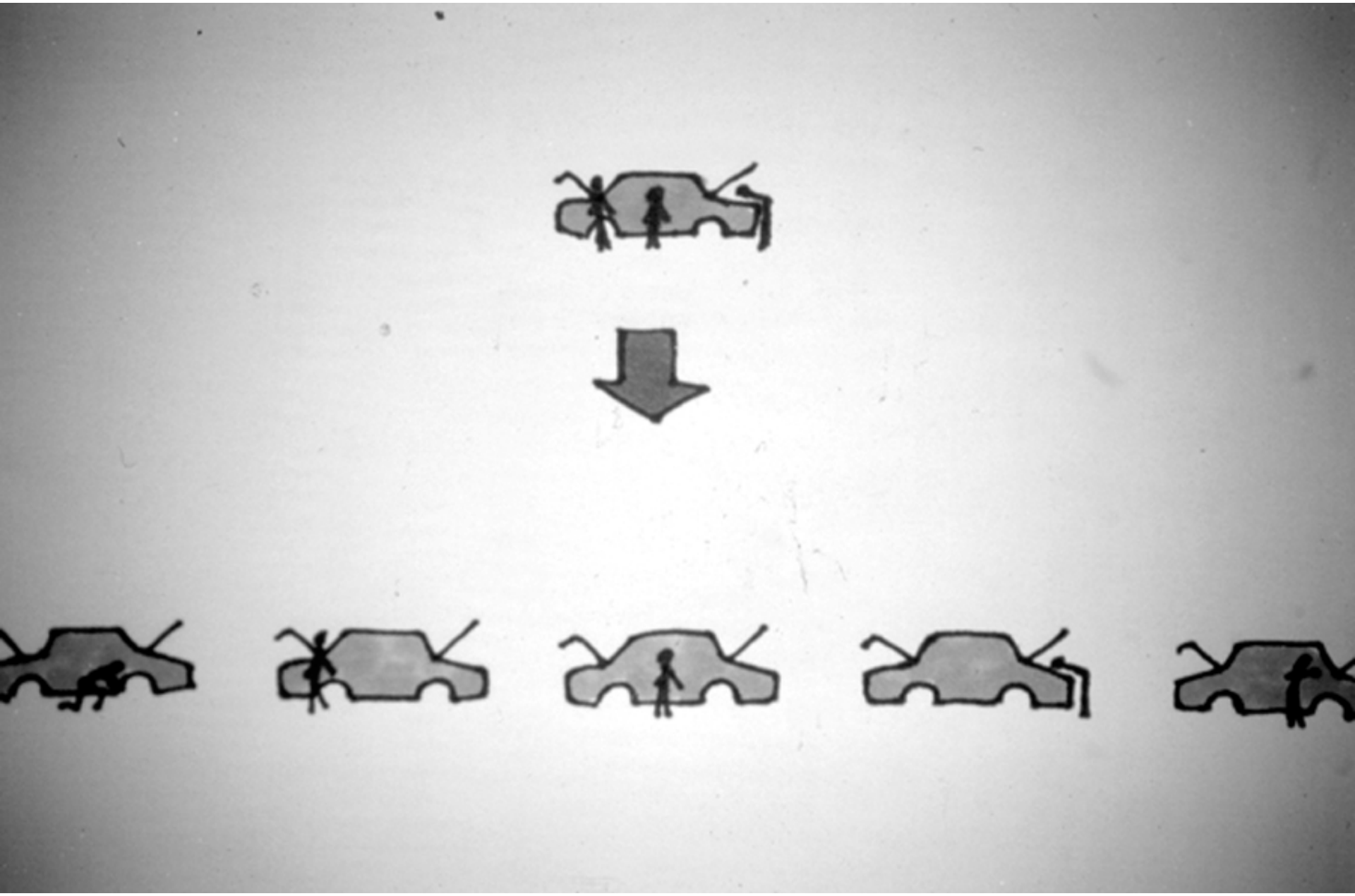
OVERCOMIN THE FEAR OF CHANGE

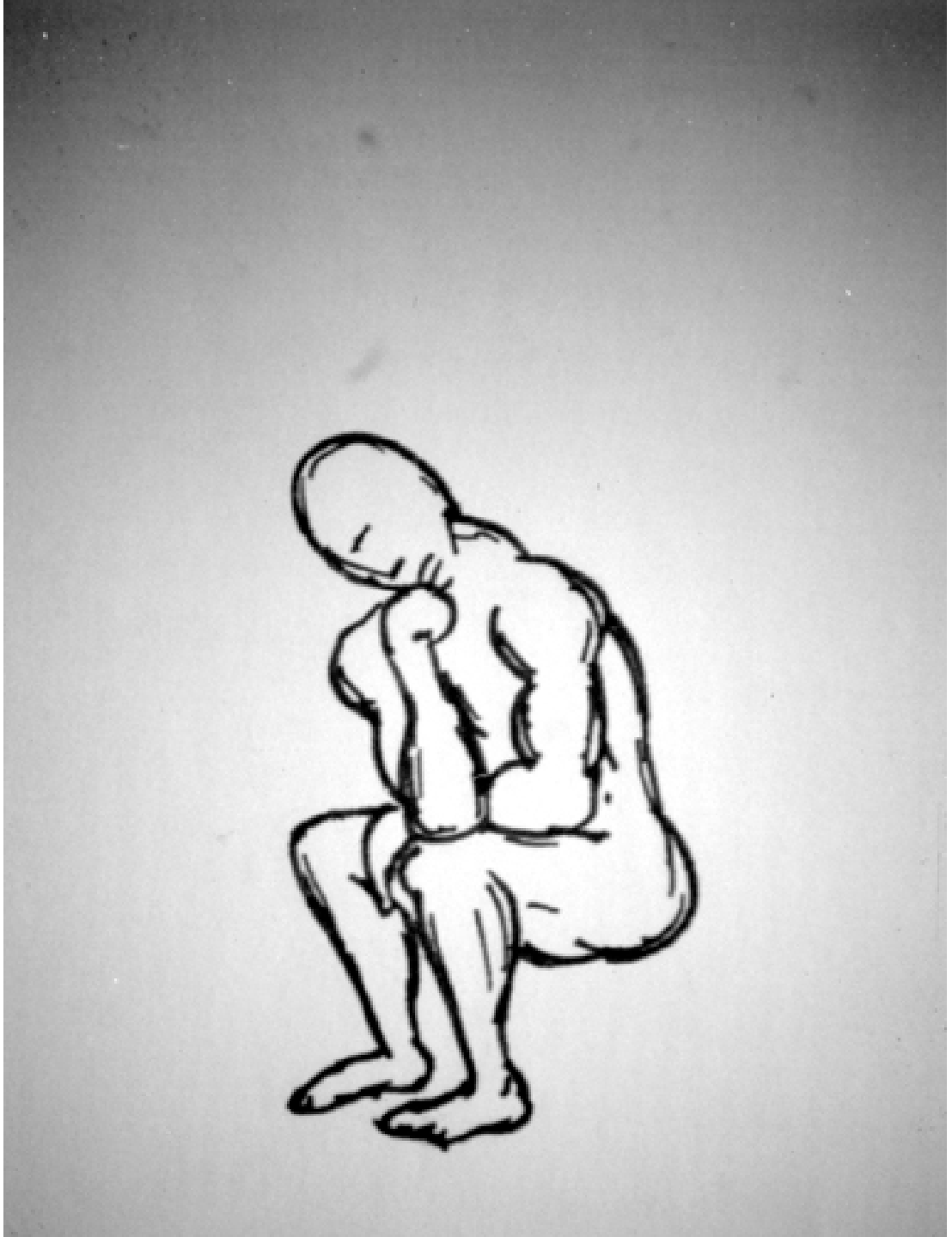


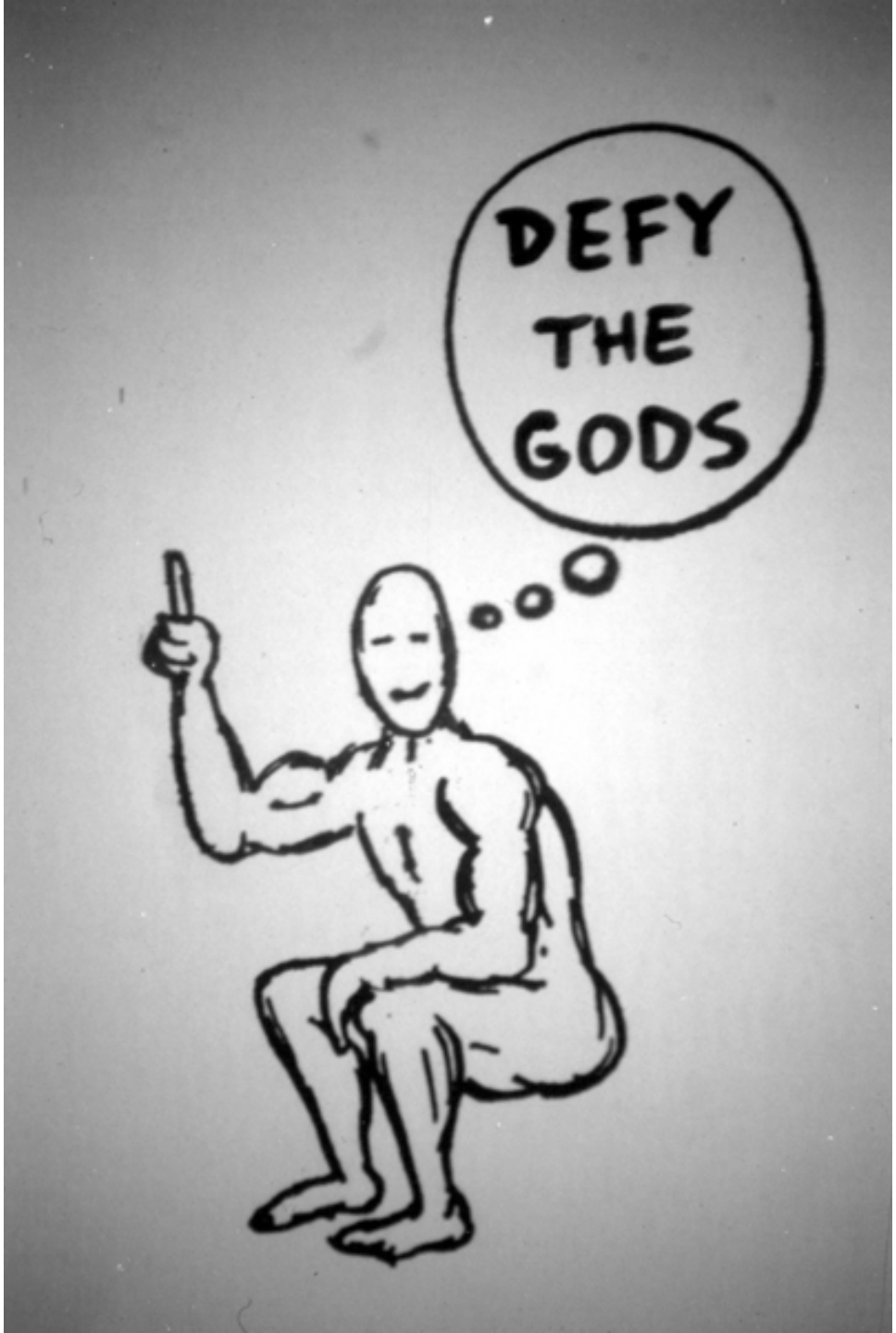
The problems we have created cann solved with the sa thinking that crea




SUN
EARTH
SUN
EARTH





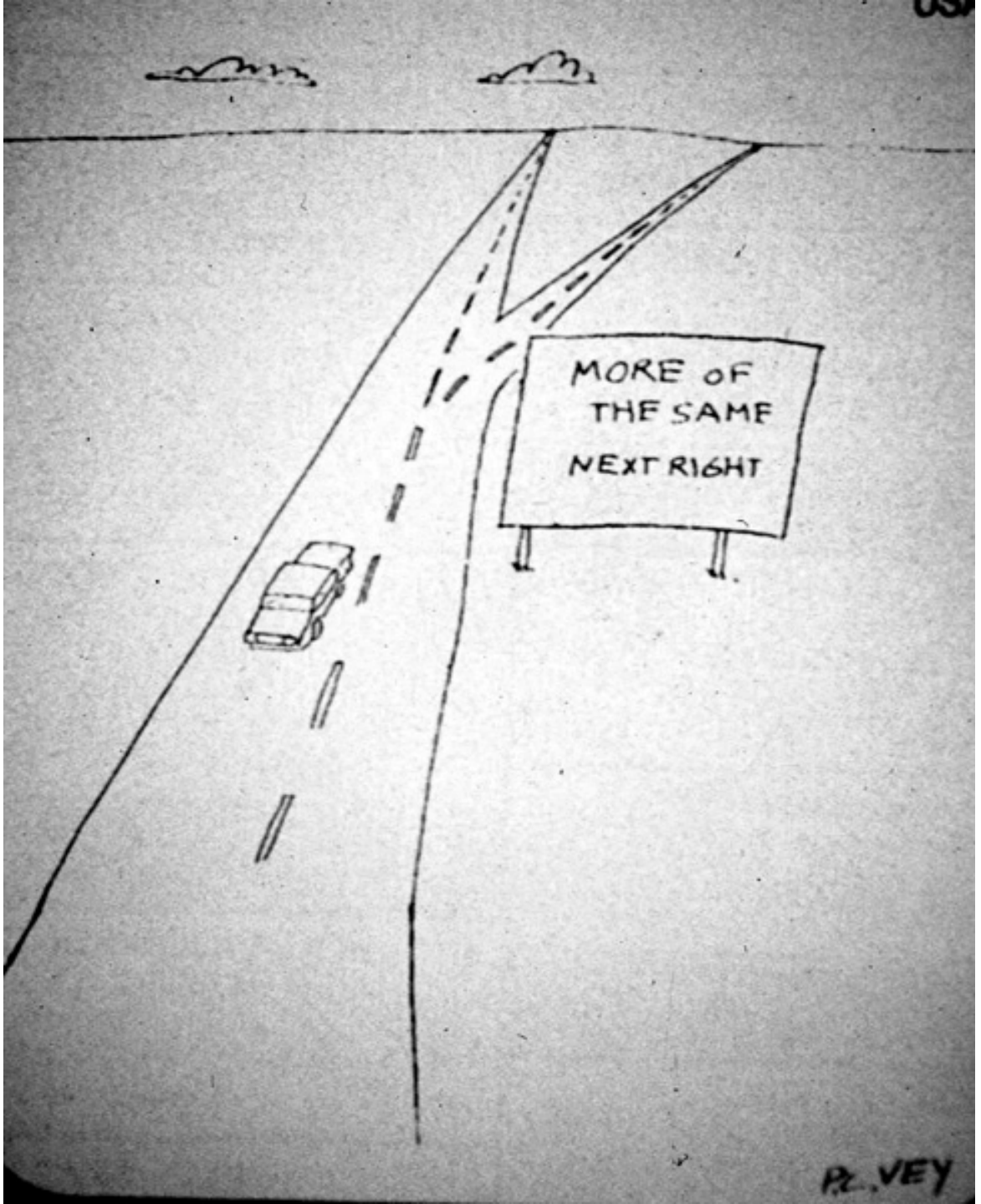

DEFY
THE
GODS

“…the possible benefits of required seat belts would not justify the costs to the manufacturers and the public.”

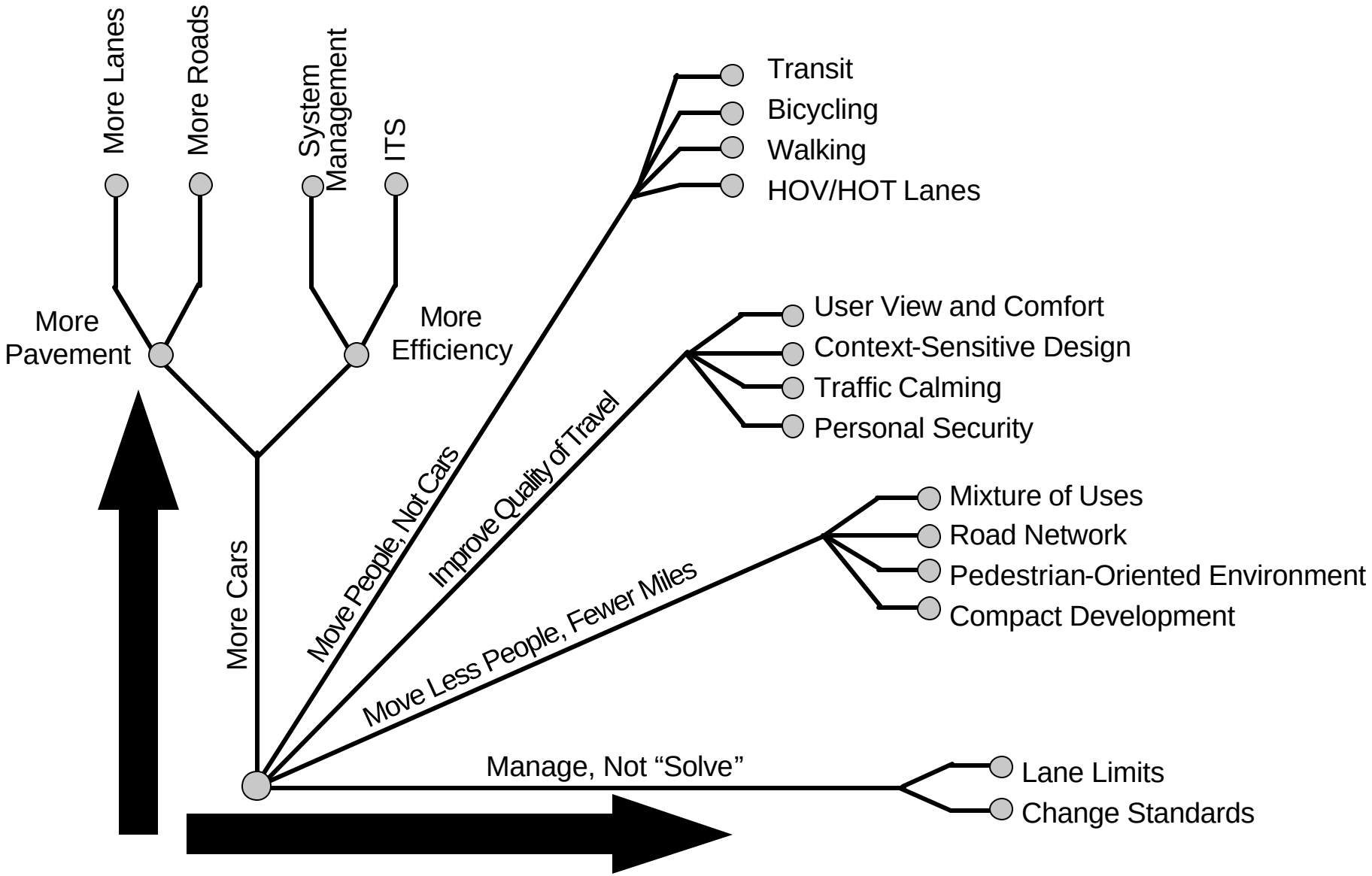
1970

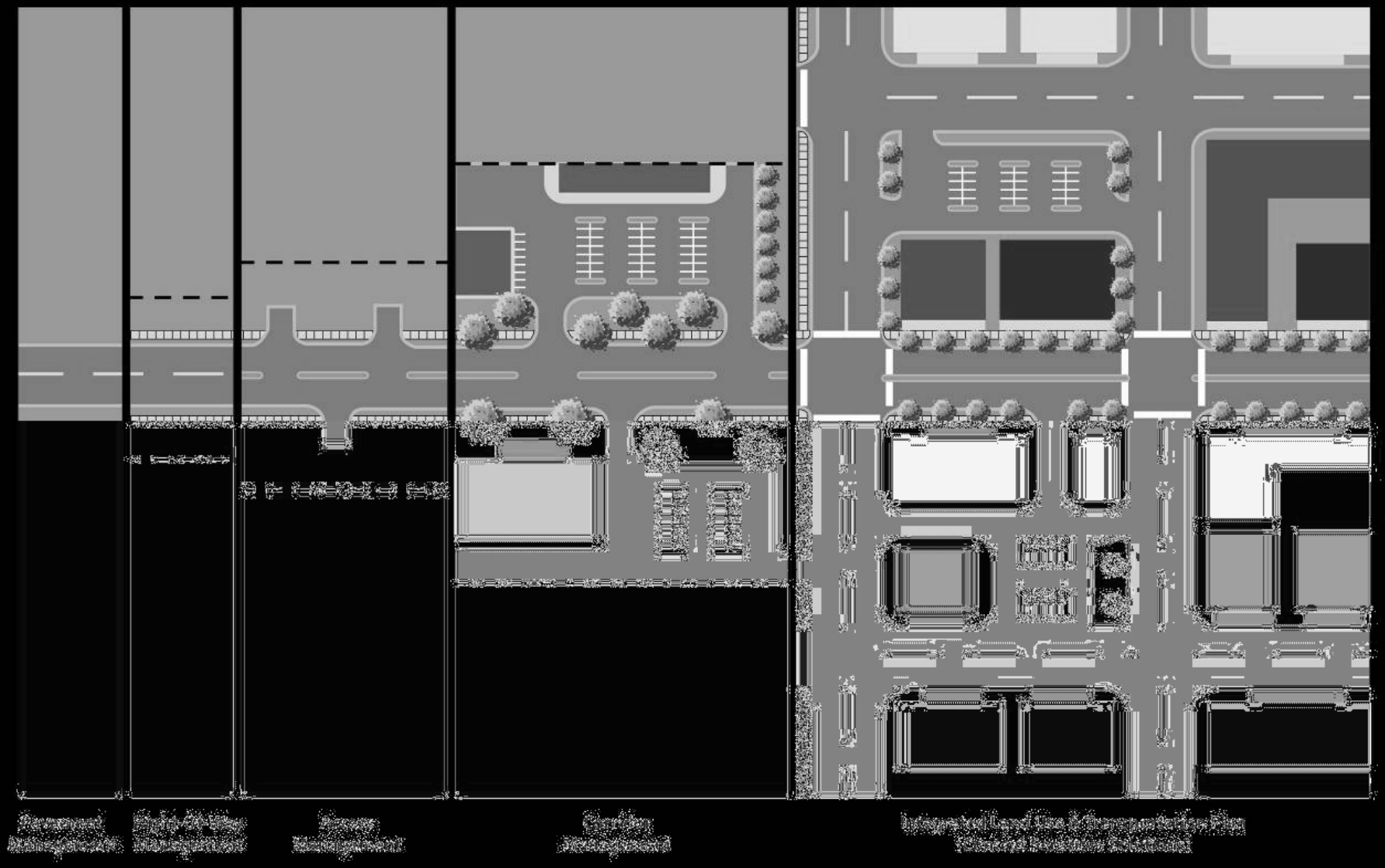
“…the possible benefits of required seat belts would not justify the costs to the manufacturers and the public.”

National Highway Traffic Safety Administration, 1970


MORE OF
THE SAME
NEXT RIGHT
P. VEY

The Possibility


More Lanes
More Roads
System Management
ITS
More Pavement
More Efficiency
More Cars
Move People, Not Cars
Improve Quality of Travel
Move Less People, Fewer Miles
Manage, Not "Solve"
Transit
Bicycling
Walking
HOV/HOT Lanes
User View and Comfort
Context-Sensitive Design
Traffic Calming
Personal Security
Mixture of Uses
Road Network
Pedestrian-Oriented Environment
Compact Development
Lane Limits
Change Standards

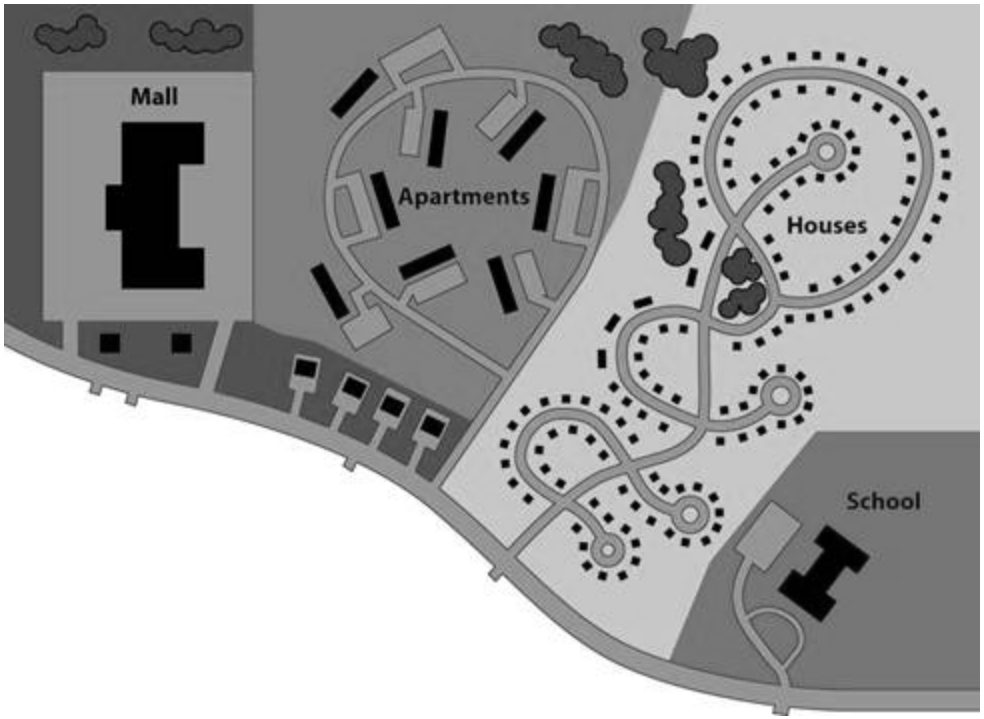


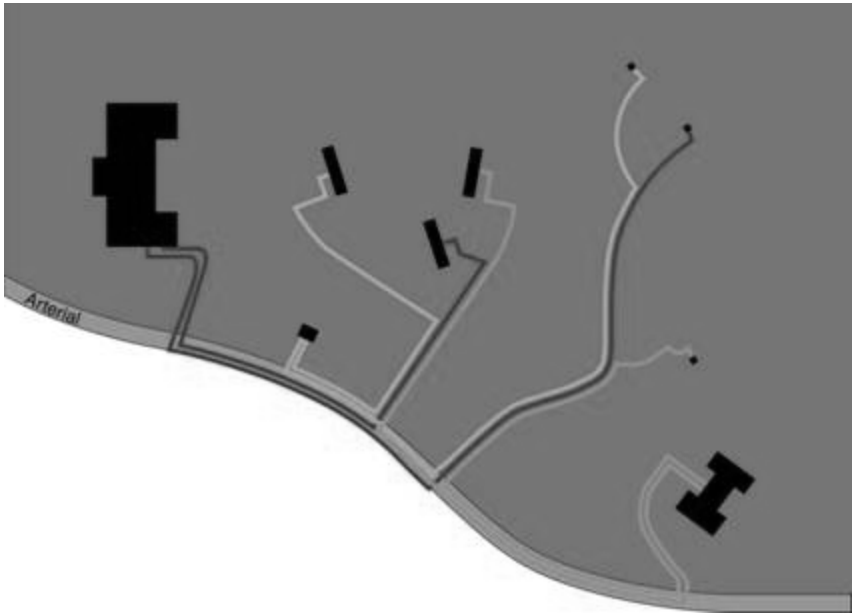
Evolution of Integrated Land Use and Transportation Plans

Principles of Livable

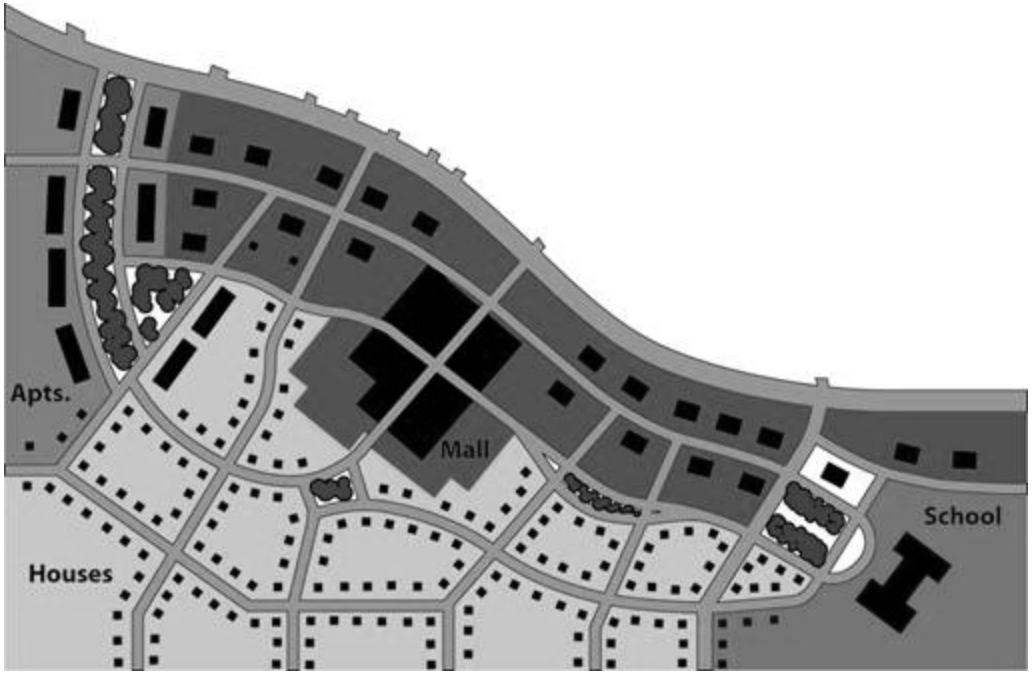
Transportation

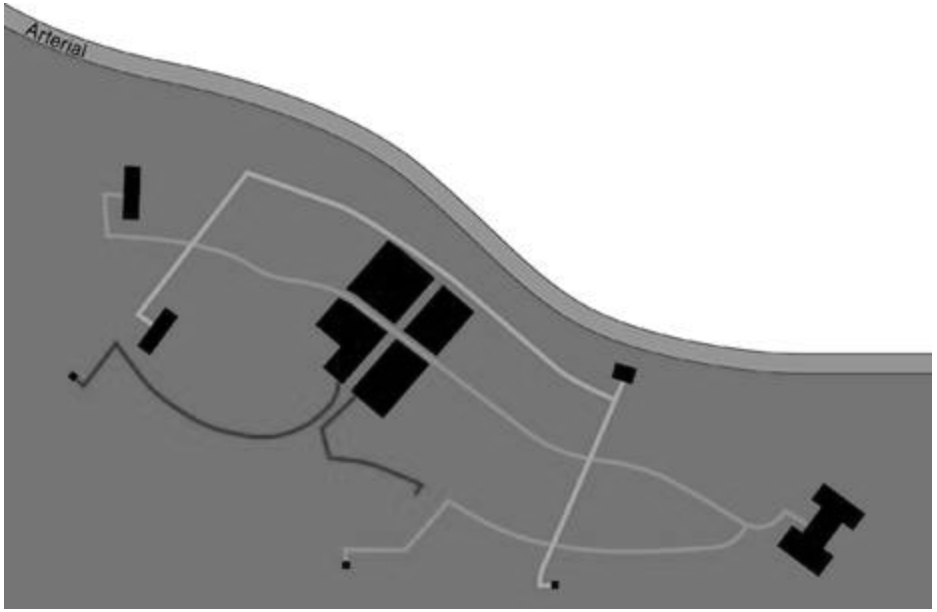
No Network – BIG ROADS

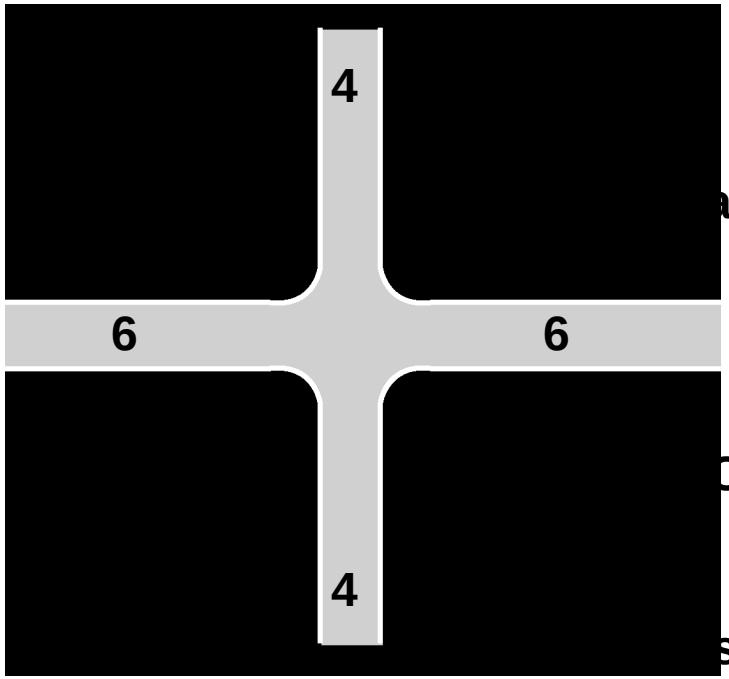




Connected Network – SMALL ROADS



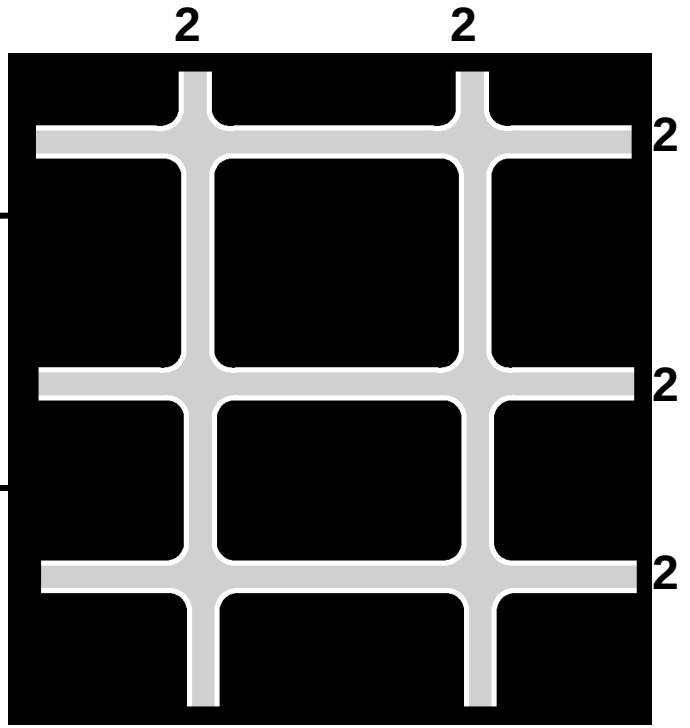




ame Total
Lanes

Capacity

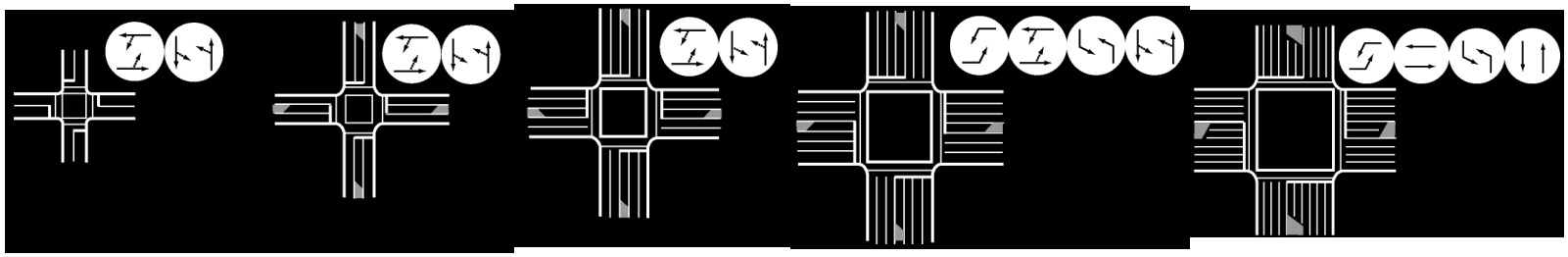
s

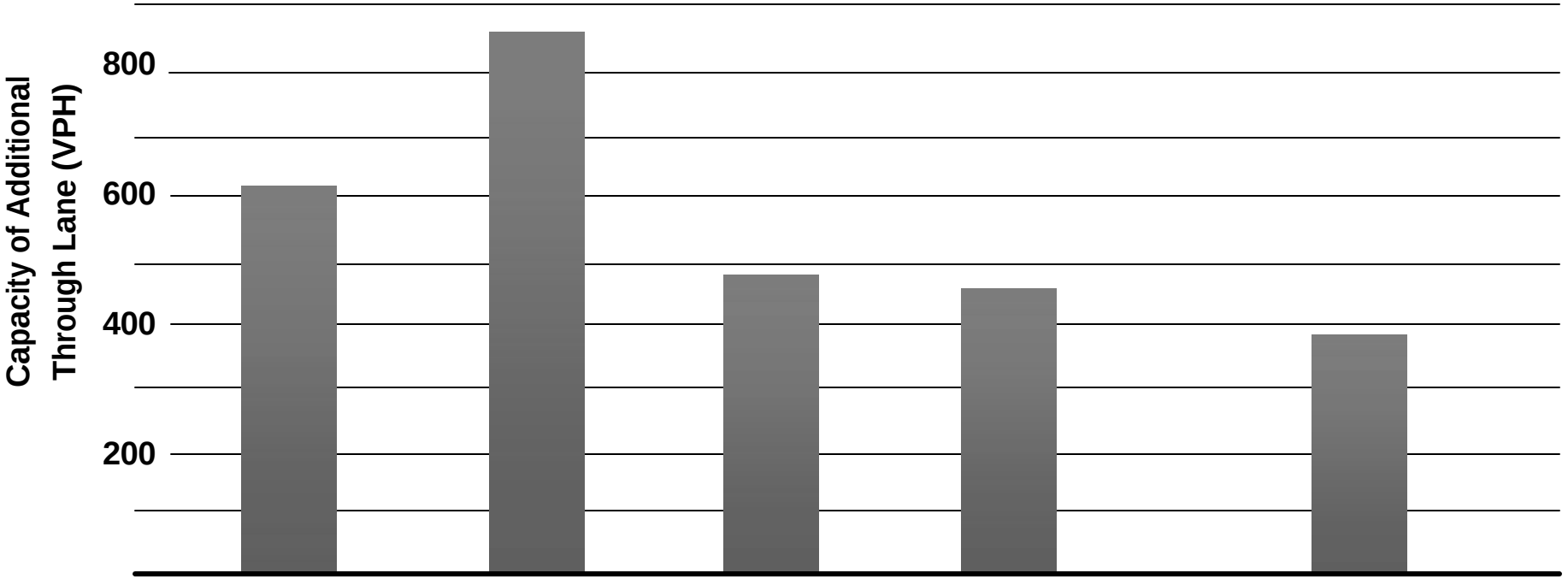


- **Clearance Time**
- **Signal Phase**

Benefits of Network

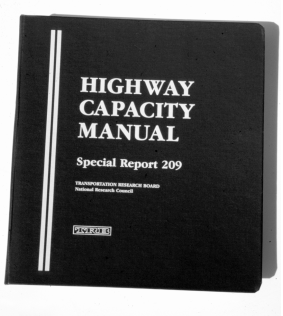
Reframing Key Transportation Conventions
DESIGN TRAFFIC - Defining the Context

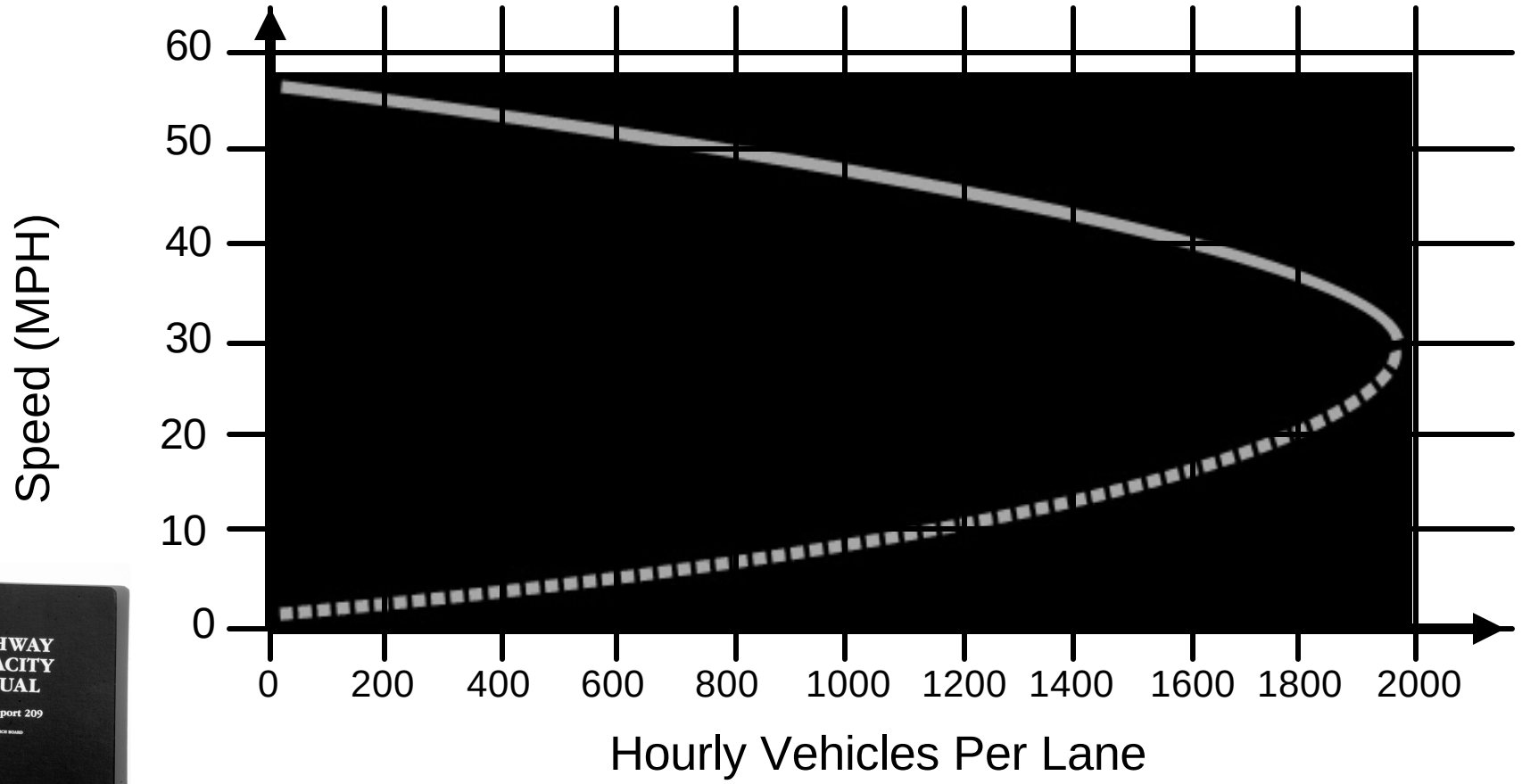




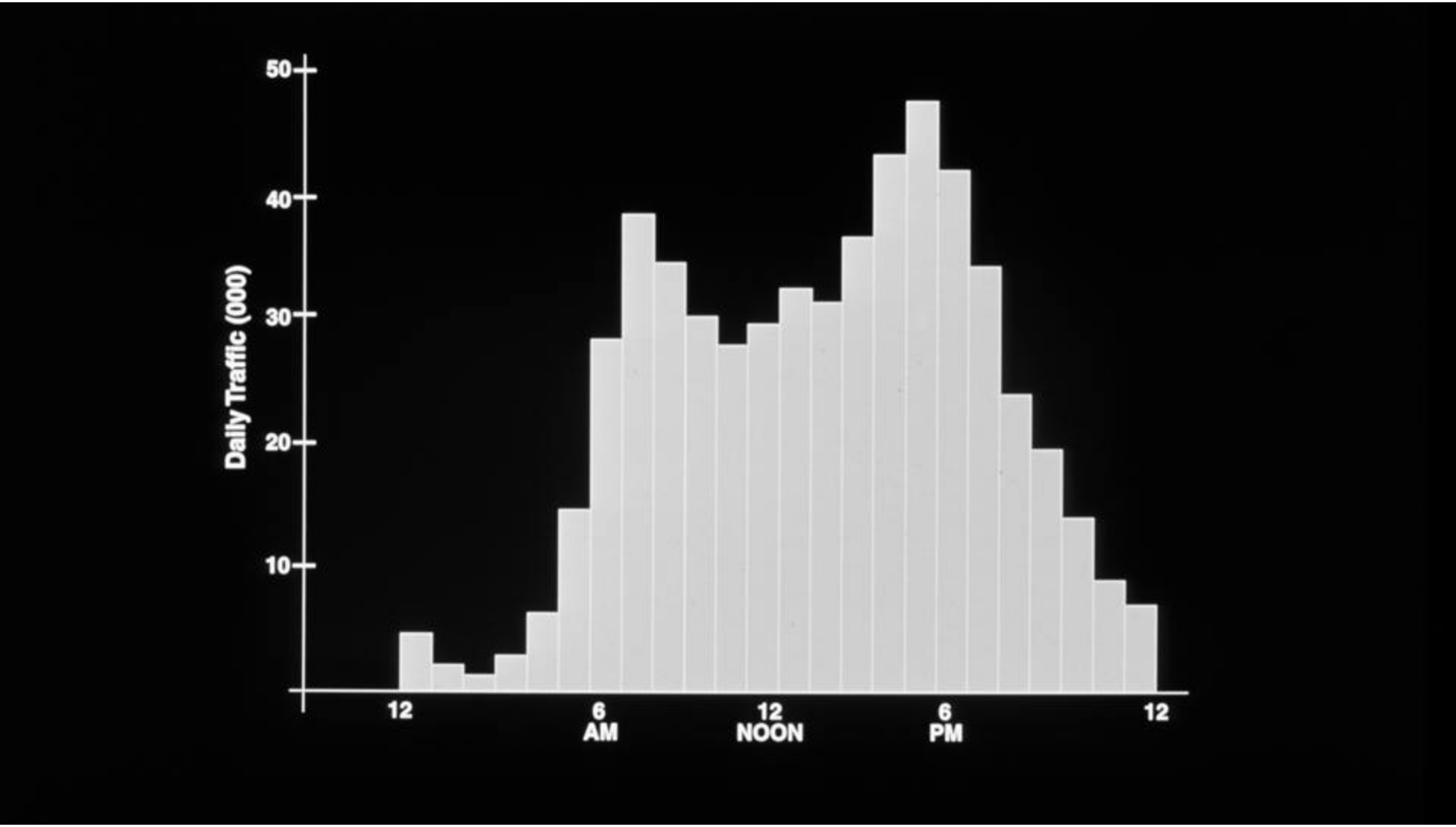
Lane Capacity

Reframing Transportation Conventions
DESIGN TRAFFIC – Speed / Flow Relationship

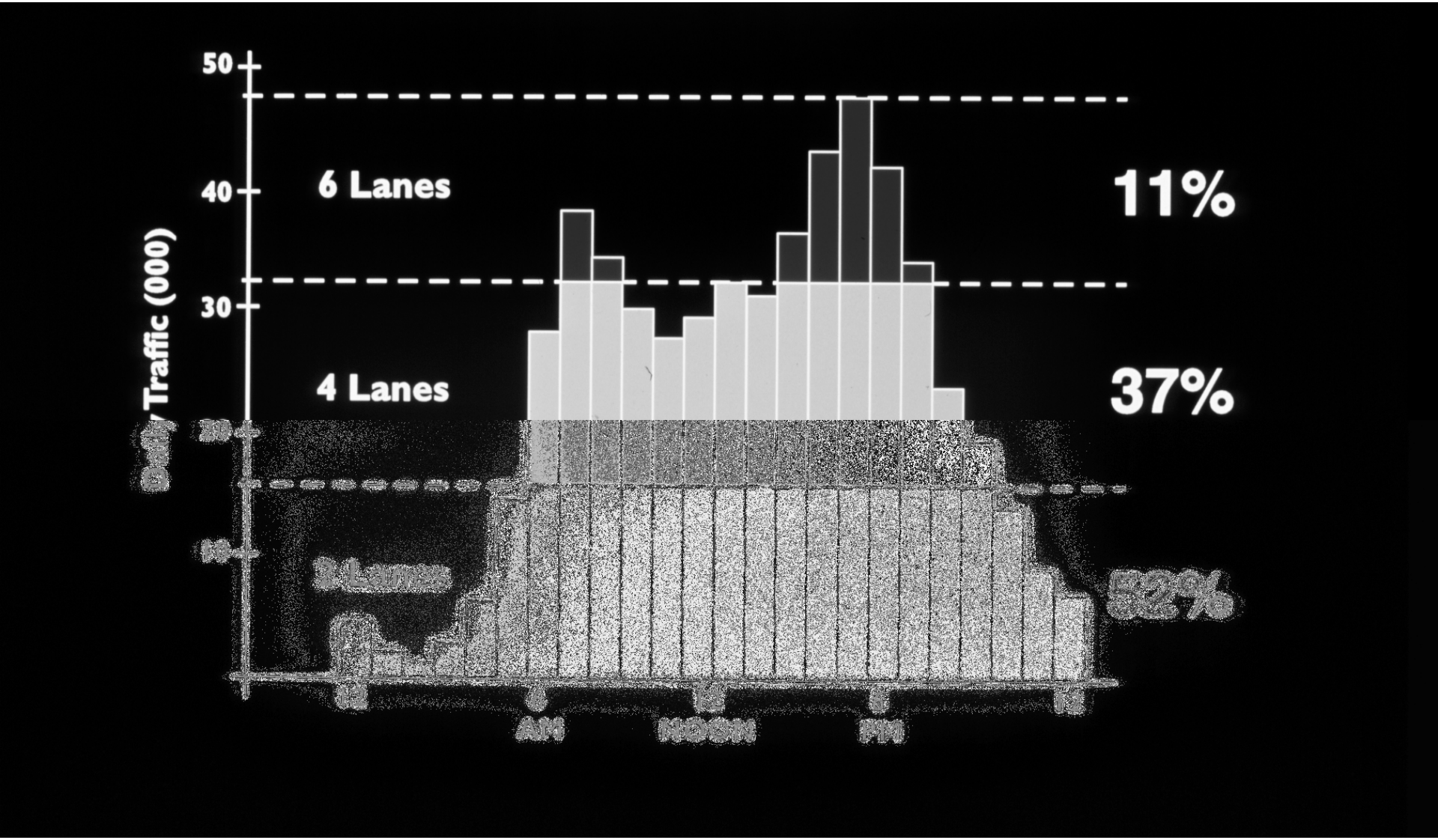


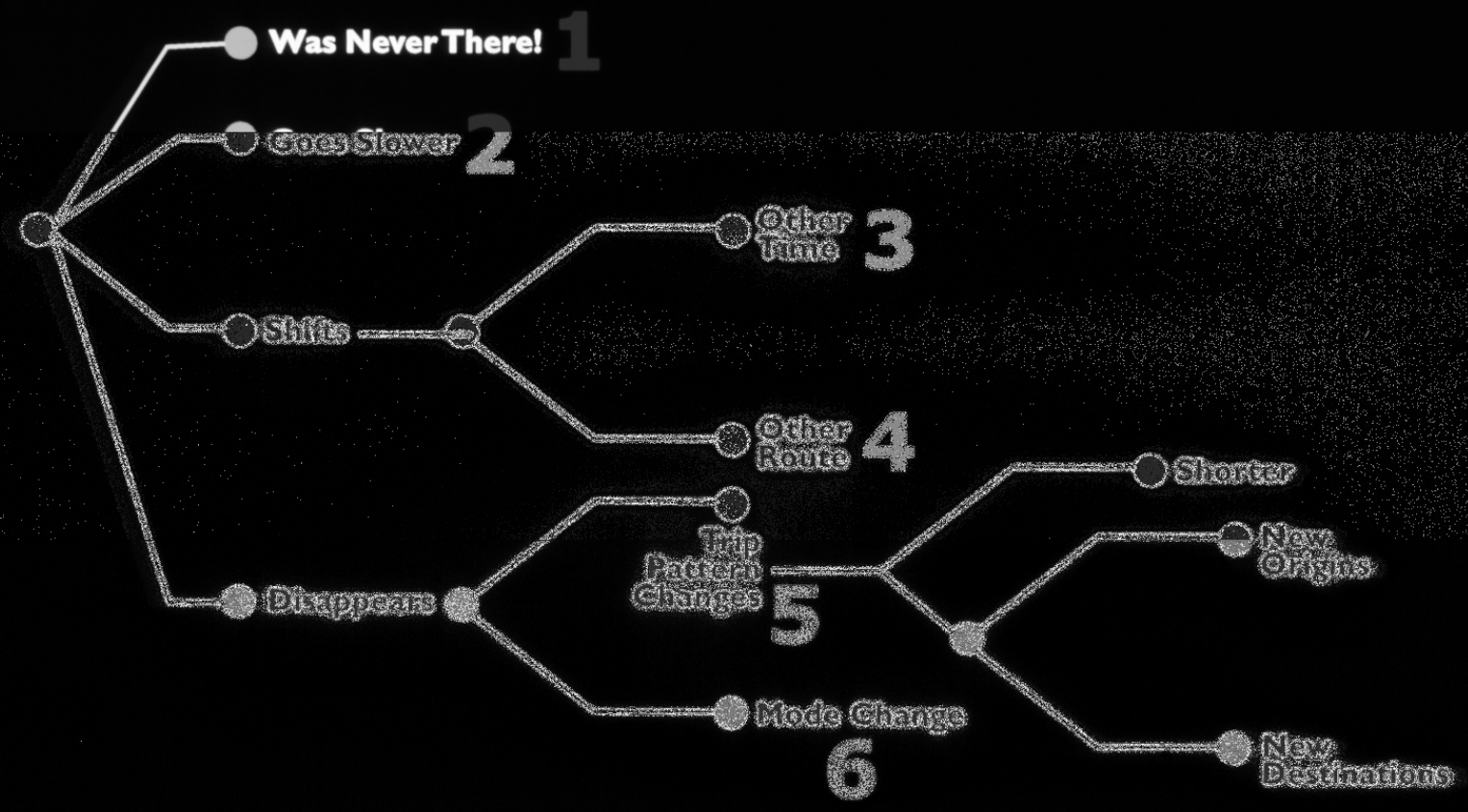


Reframing Transportation Conventions
DESIGN TRAFFIC - Understanding Travel Patterns

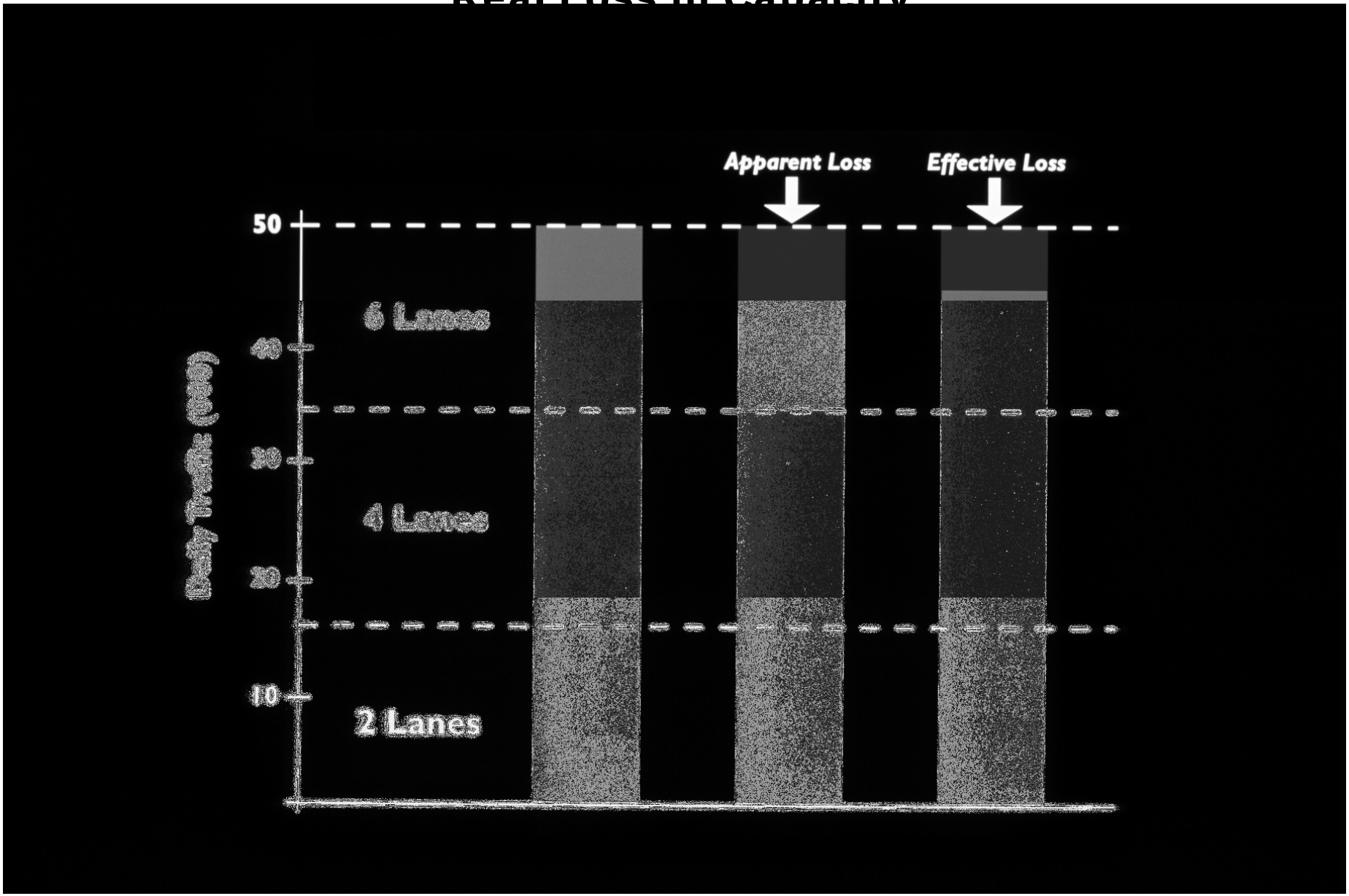


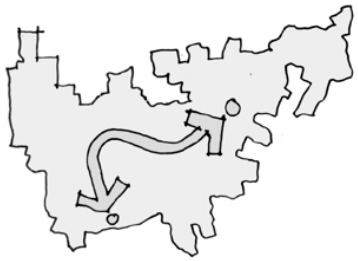
Reframing Transportation Conventions
DESIGN TRAFFIC - Understanding Travel Patterns



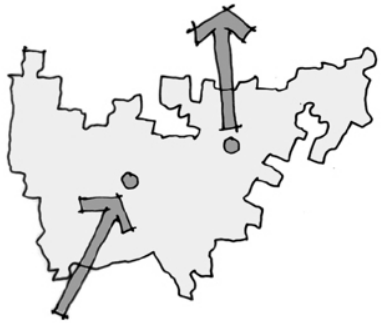

Was Never There!
1
Goes Slower
2
Other Time
3
Shifts
Other Route
4
Shorter
Trip Pattern Changes
New Origins
Disappears
5
Mode Change
6
New Destinations

Real Loss in Capacity



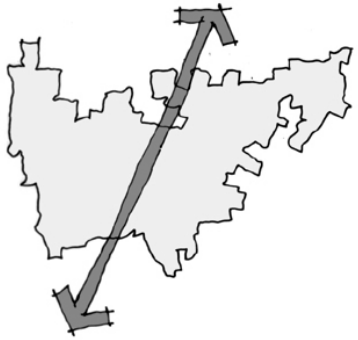


- Internal Travel – Preserve the capacity and quality of local streets for travel made entirely within the City.



- Local Travel – Make selective, precisely targeted capacity improvements, on the City's own terms. for trips beginning in (by residents of) Roswell and trips ending in (by visitors to) Roswell.

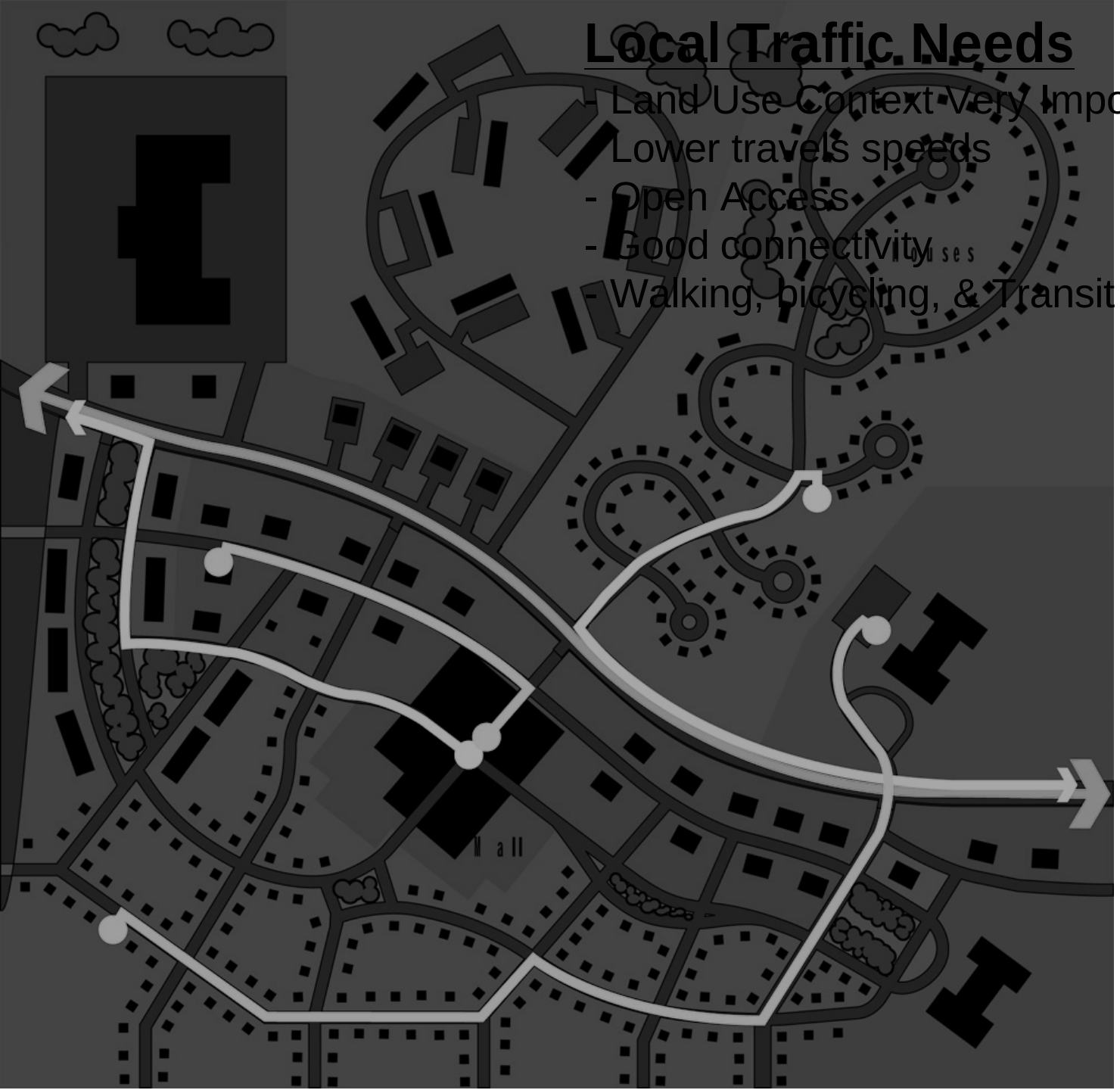
SELECT LINK ANALYSIS



- Through Travel – For regional through trips - neither beginning nor ending in the City.

Through Traffic Needs

- Land Use Context less important
- Higher travels speeds
- Controlled Access
- Limited connectivity
- Walking and bicycling not alternatives
- Transit could be an alternative

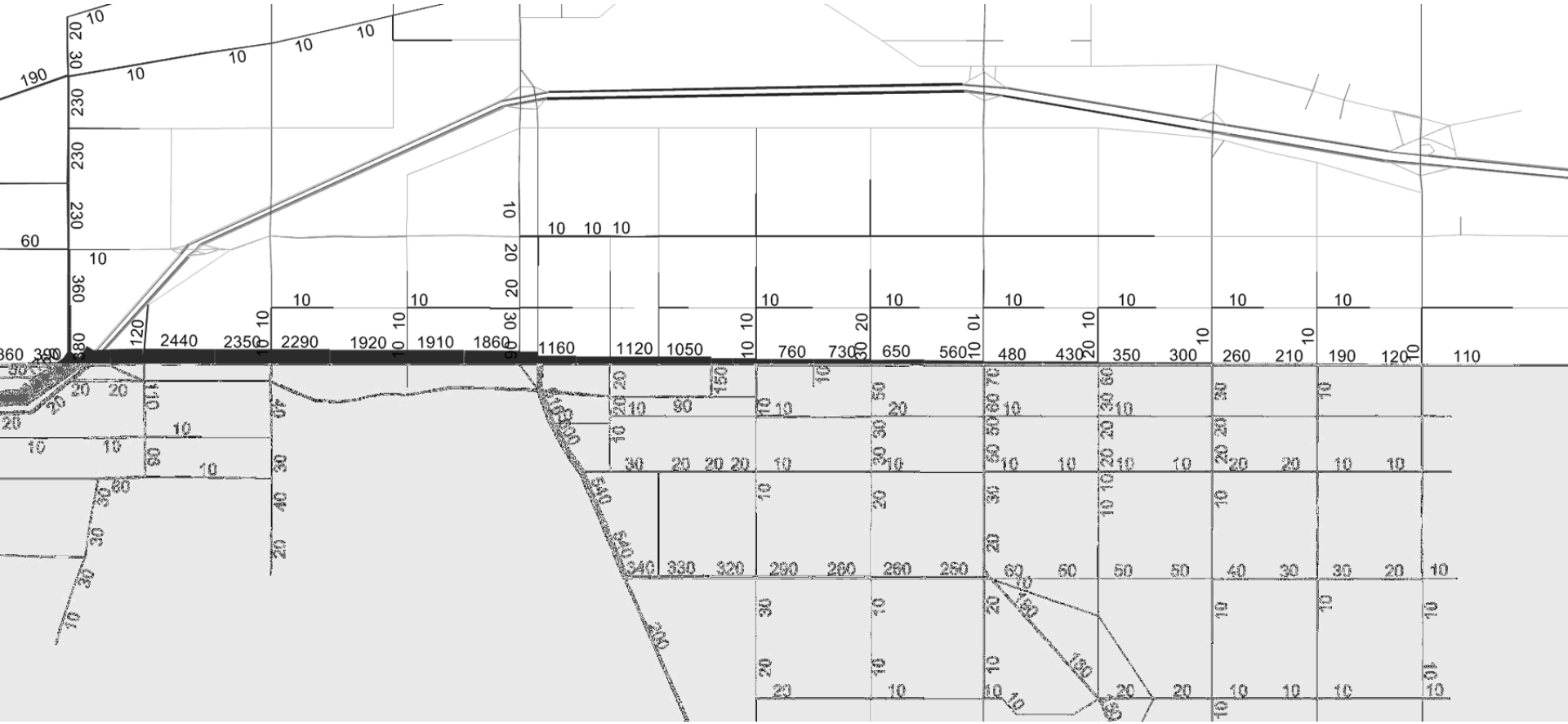


Local Traffic Needs

- Land Use Context Very Important
- Lower travels speeds
- Open Access
- Good connectivity
- Walking, bicycling, & Transit are alternatives

Select Link Analysis

Westbound Sprague at Freeway Overpass



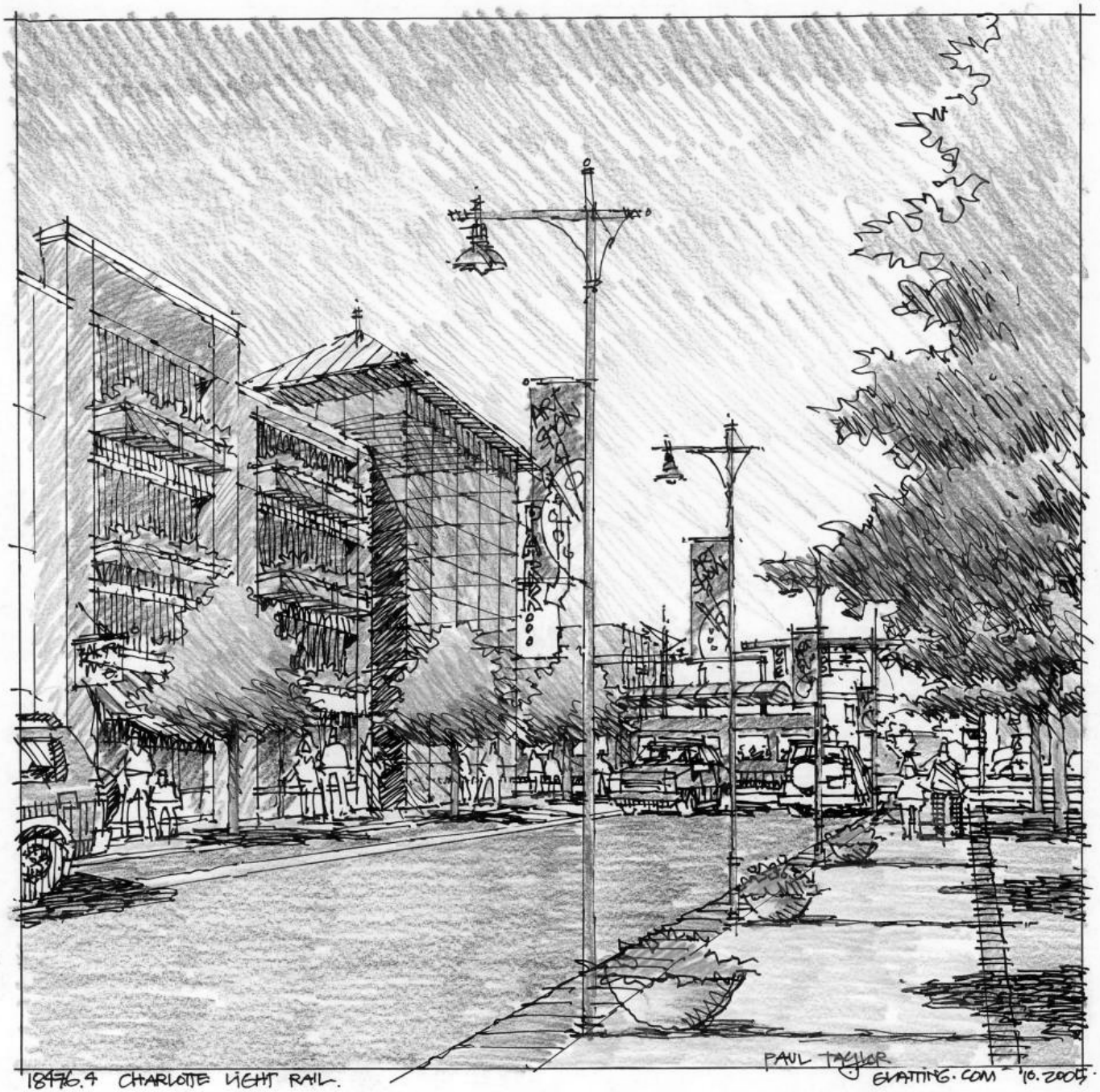
PM Peak Hour volume
at end of corridor

2760

Same volume from this
link at end of corridor

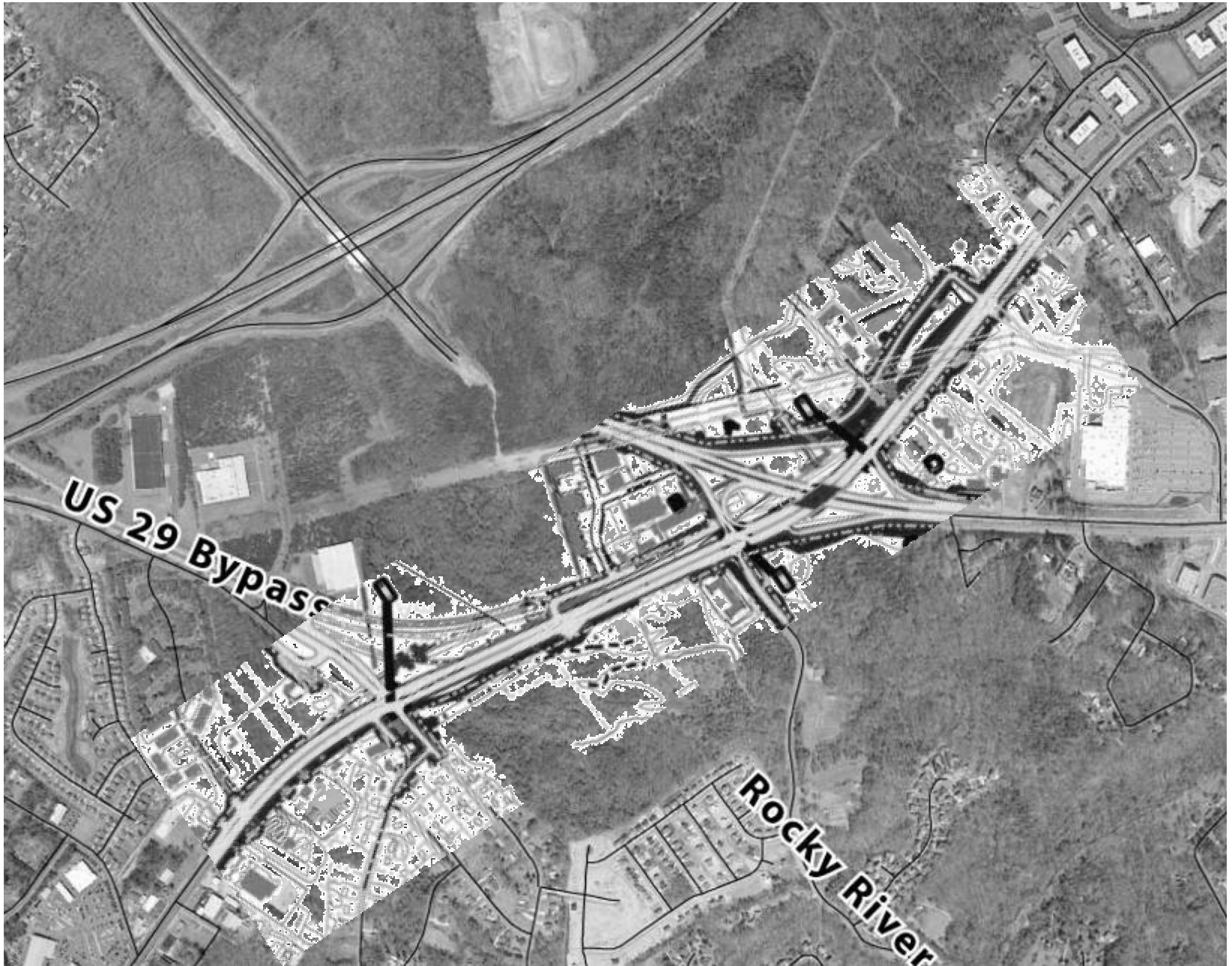
110 (4%)

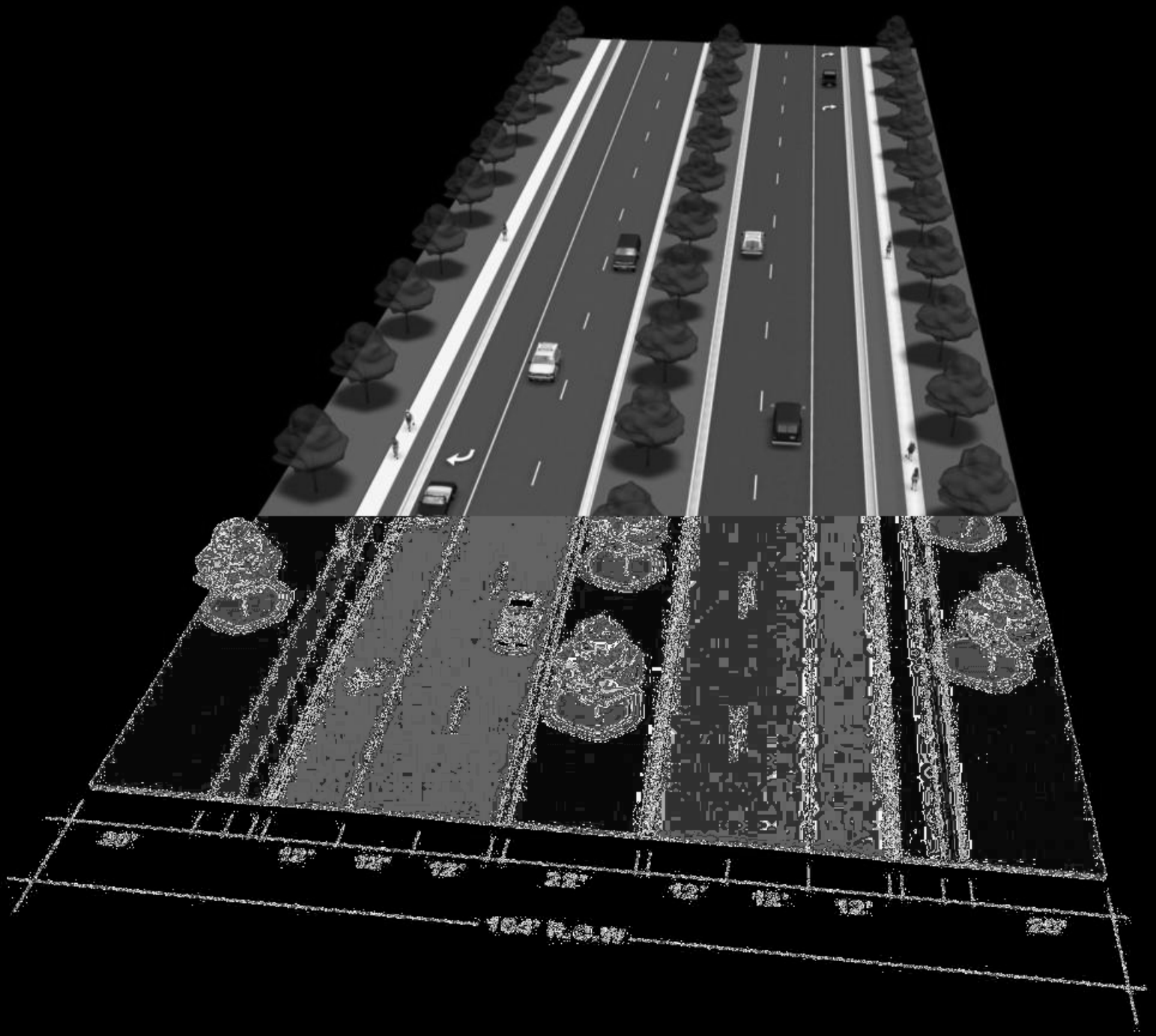

POSEIDON
ENTERPRISES

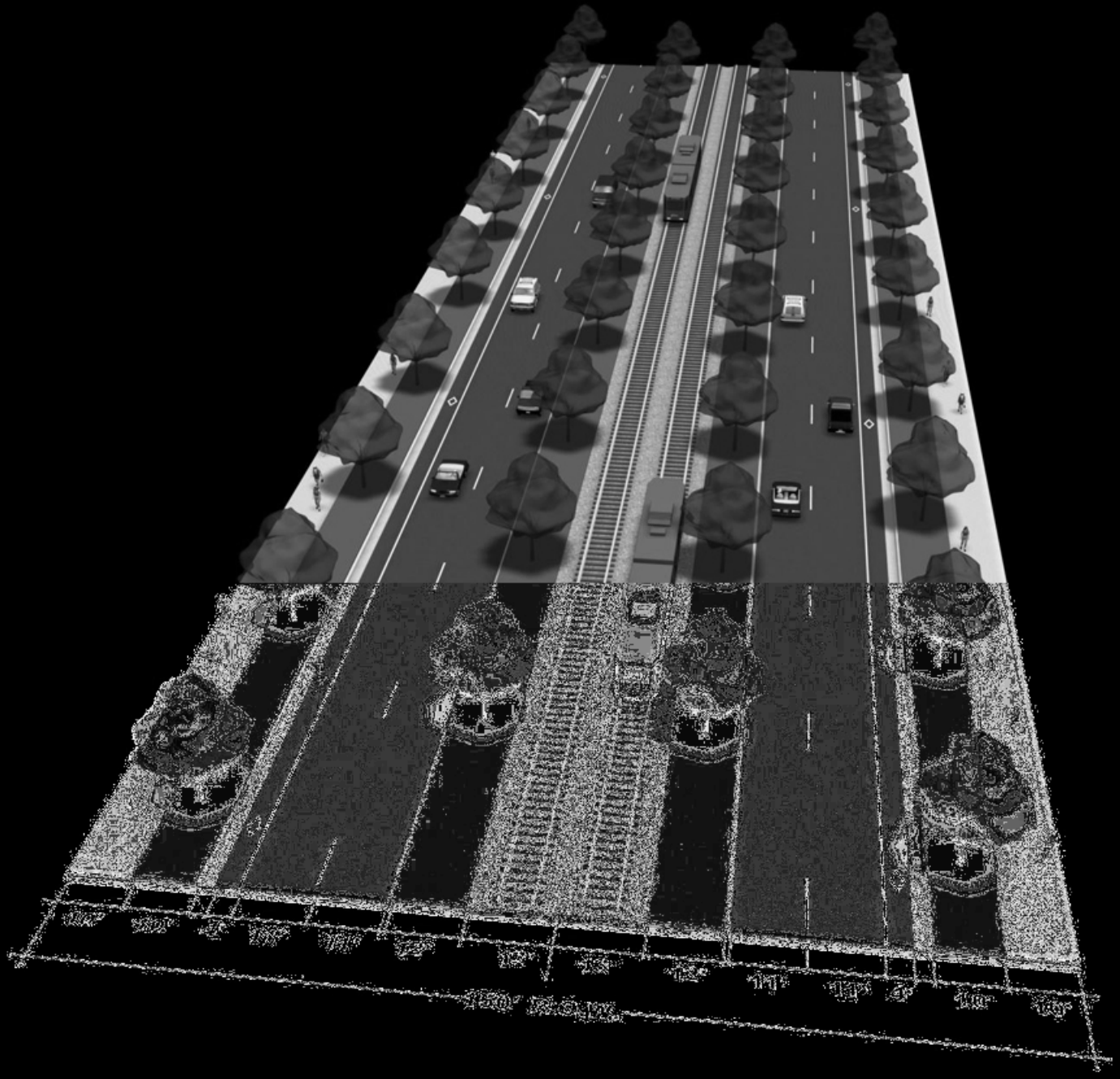

18976.4 CHARLOTTE LIGHT RAIL.
PAUL TAYLOR
EVATTING.COM - 10.2005.

University City Area

University City Area

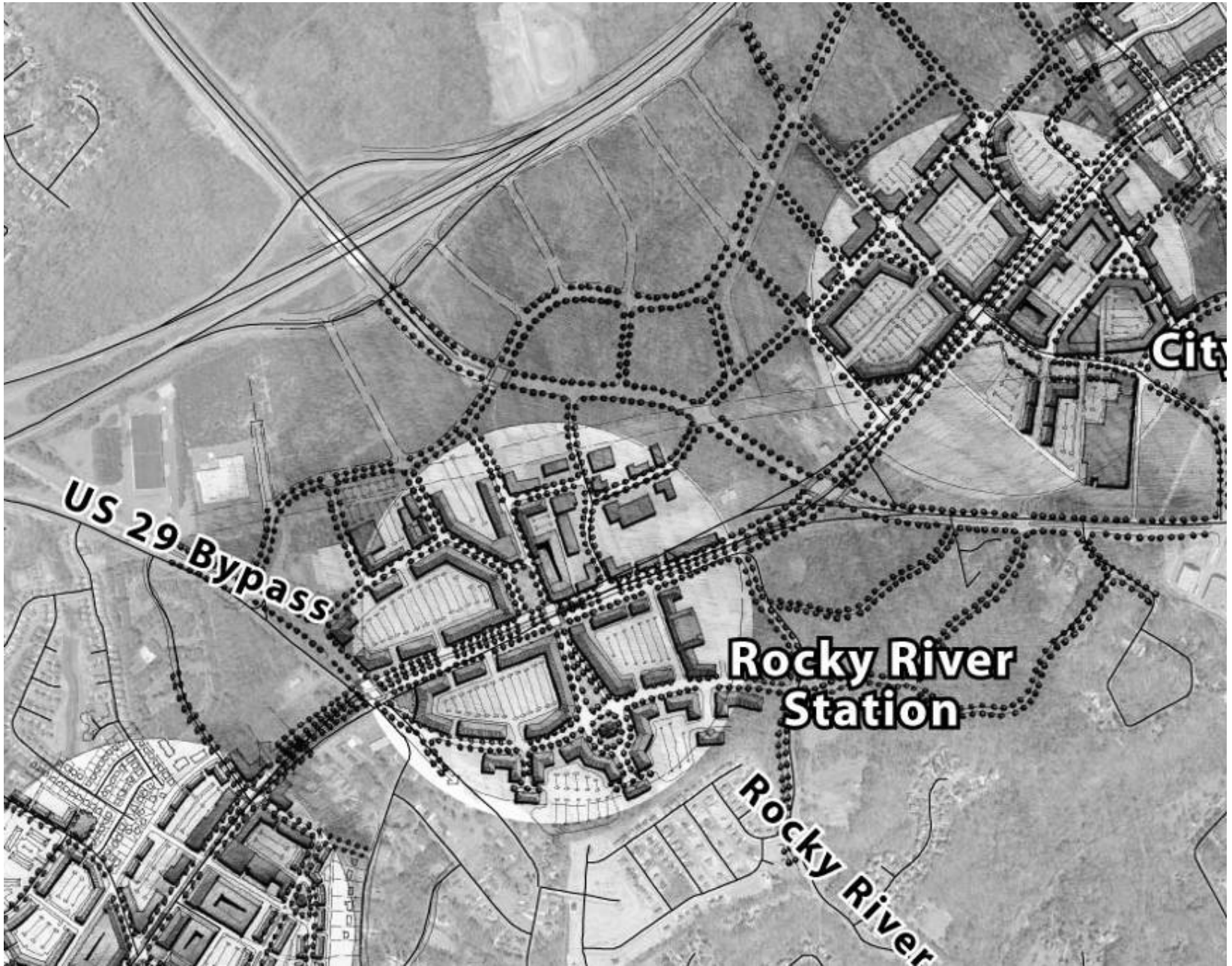






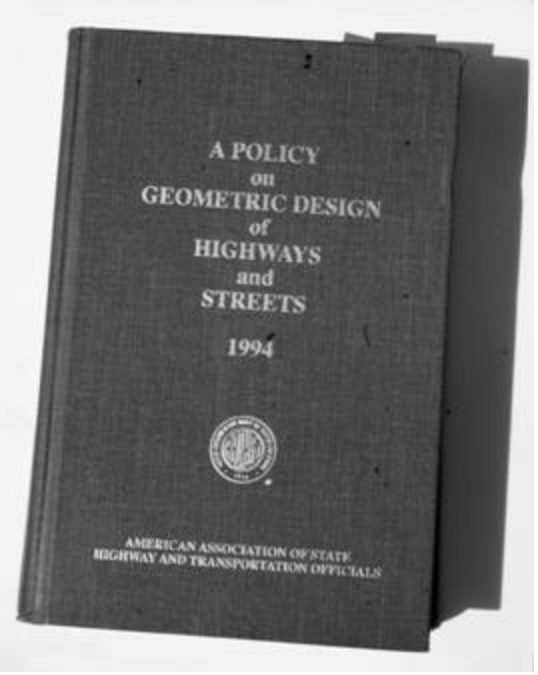
University City Area

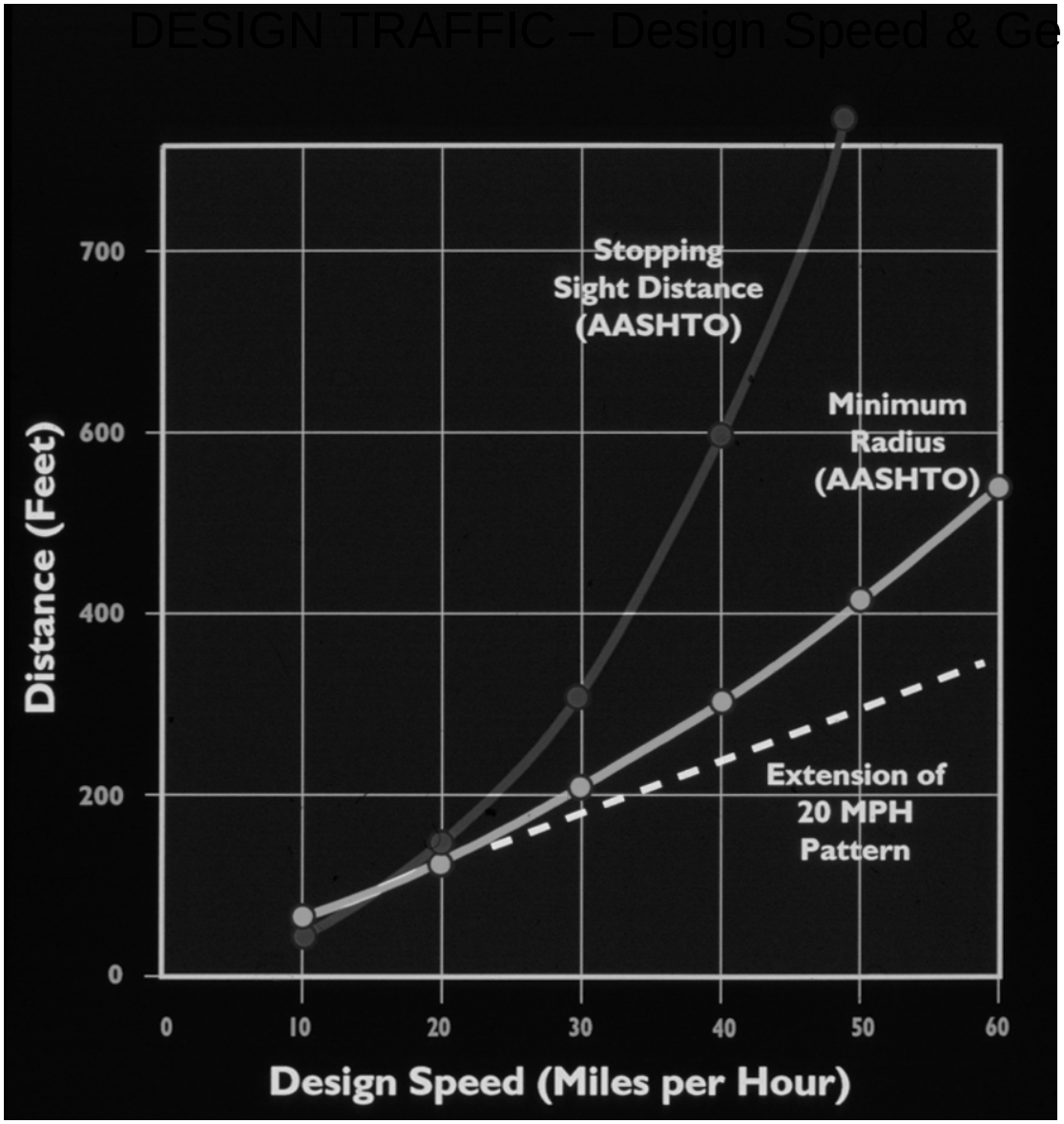
NE Corridor Station Areas



Reframing Transportation Conventions

DESIGN TRAFFIC – Design Speed & Geometrics

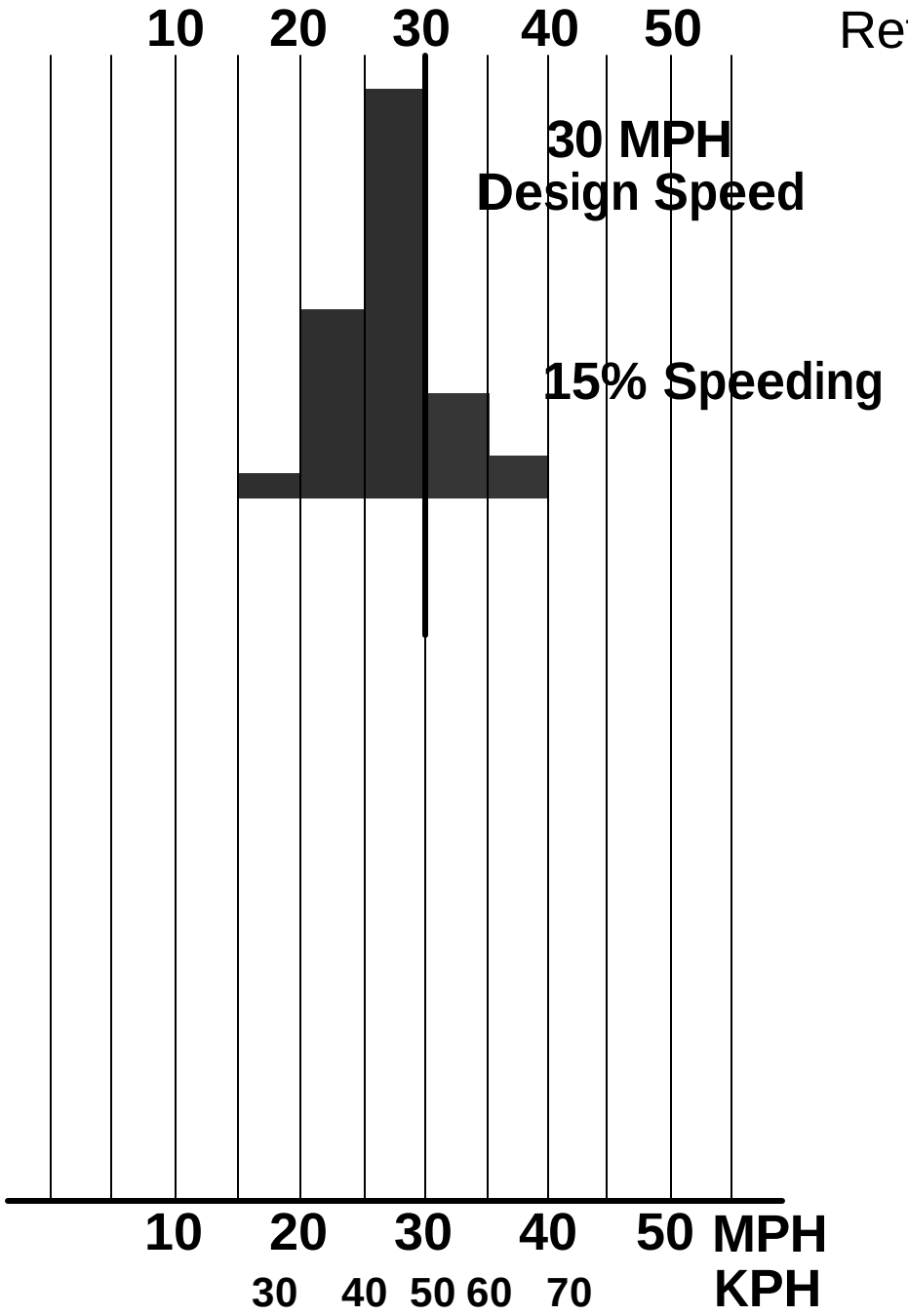




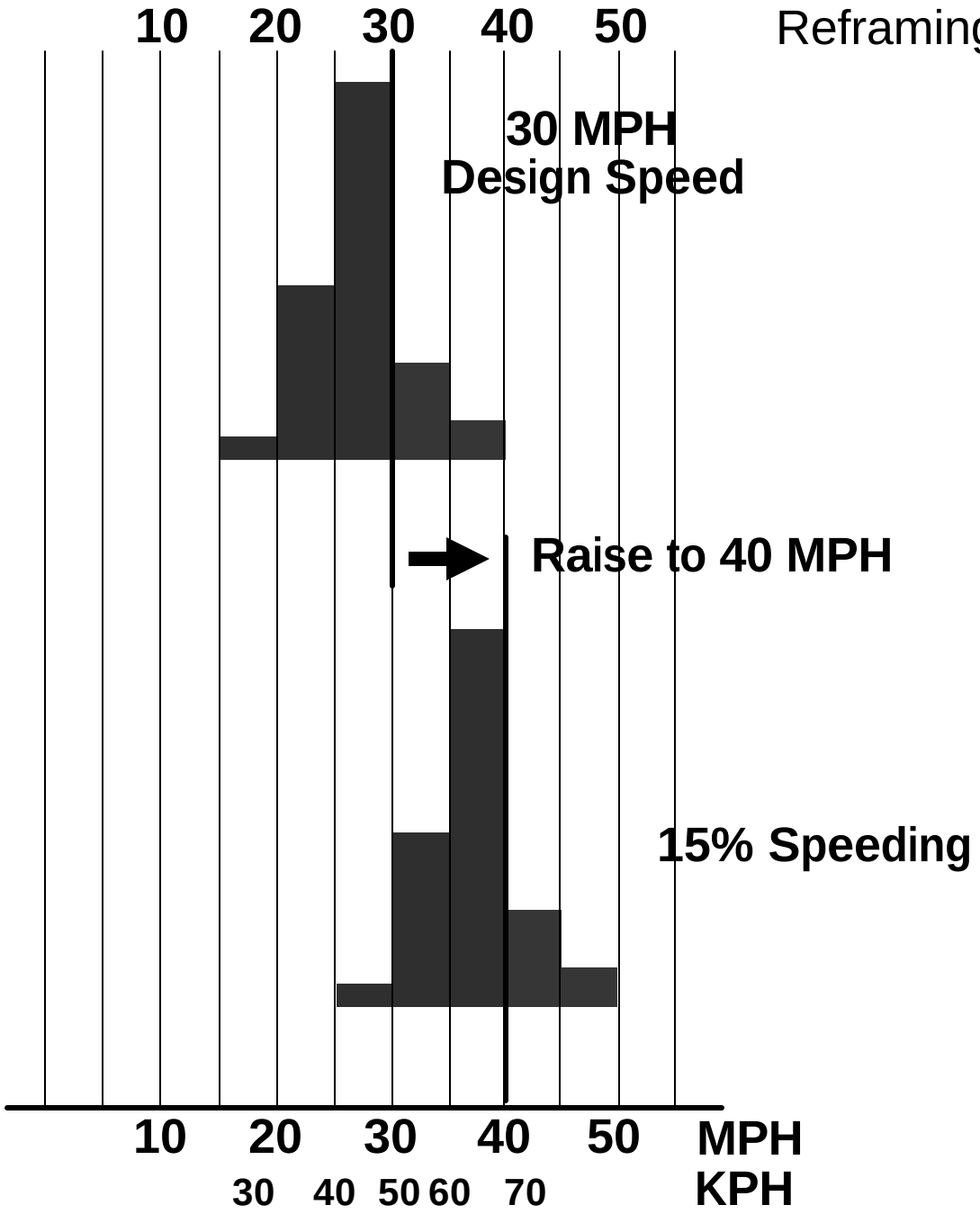
Reframing Transportation Conventions

DESIGN TRAFFIC

Design Speed & Geometrics



Reframing Transportation Conventions
DESIGN TRAFFIC
Design Speed & Geometrics



30 mph

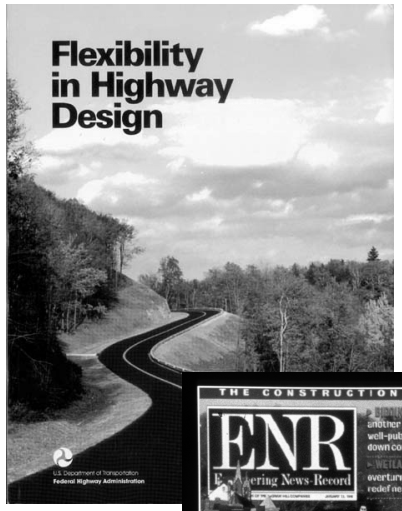
25 mph

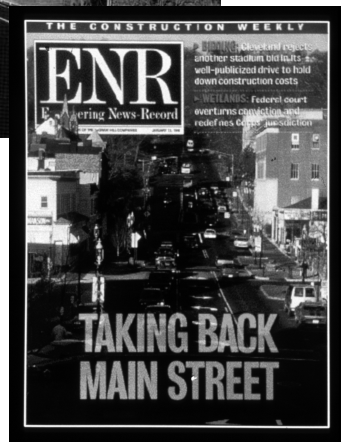
20 mph

15

SPEED	p(killing pedestrian)
15 mph	3.5 %
31 mph	37.0 %
44 mph	83.0 %

TRAFFIC CALMING





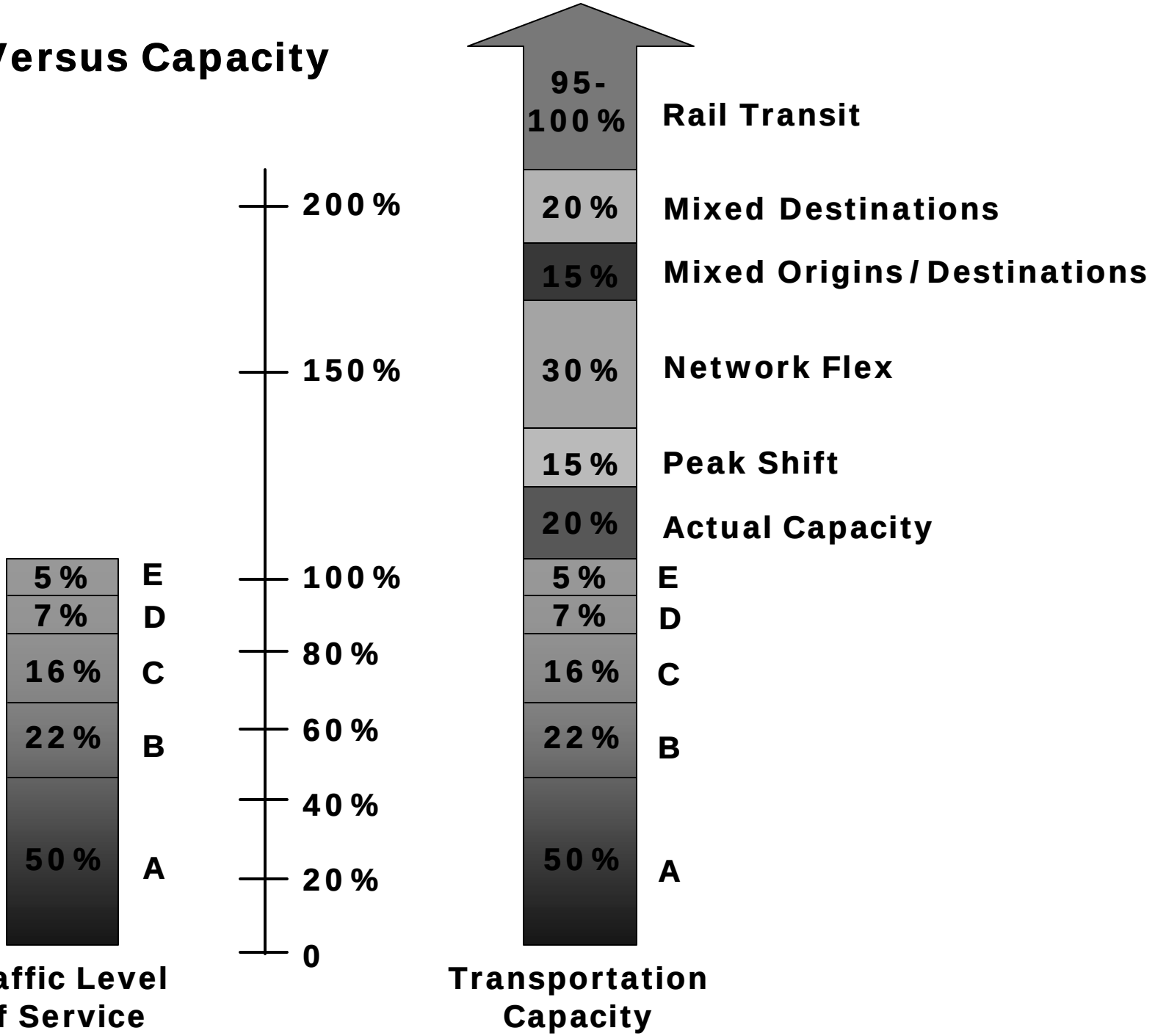
Measuring Success

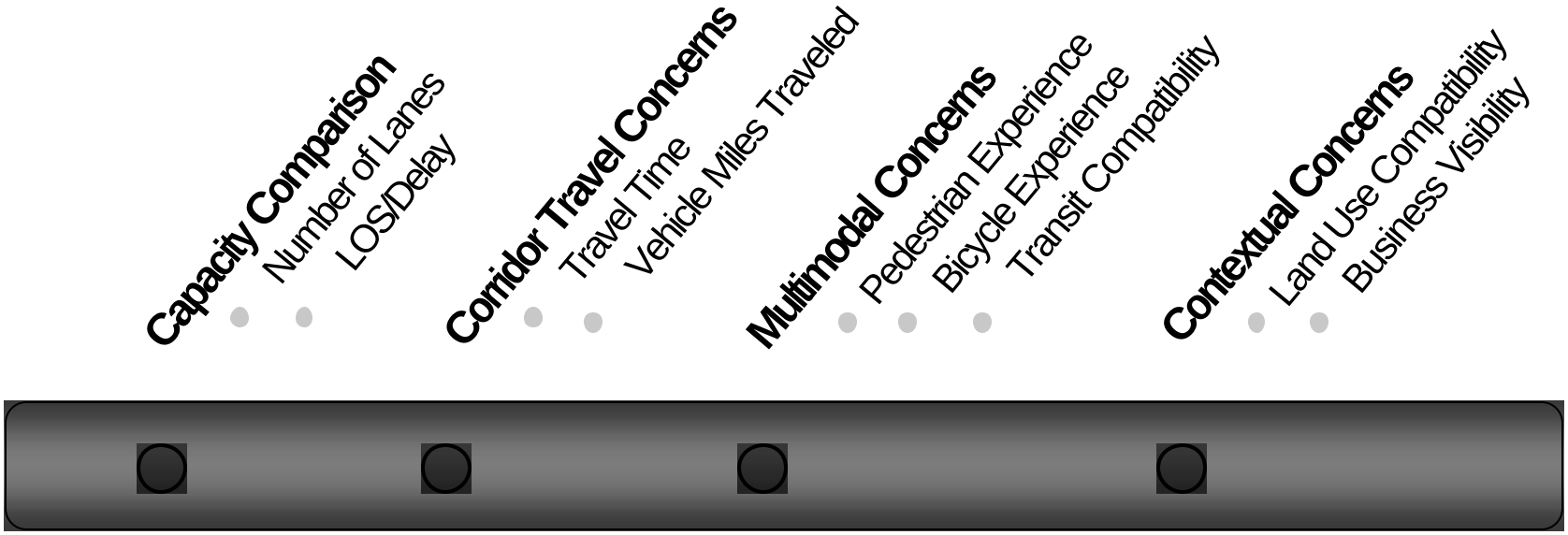
Capacity of Streets

LEVEL OF SERVICE DEFINITIONS

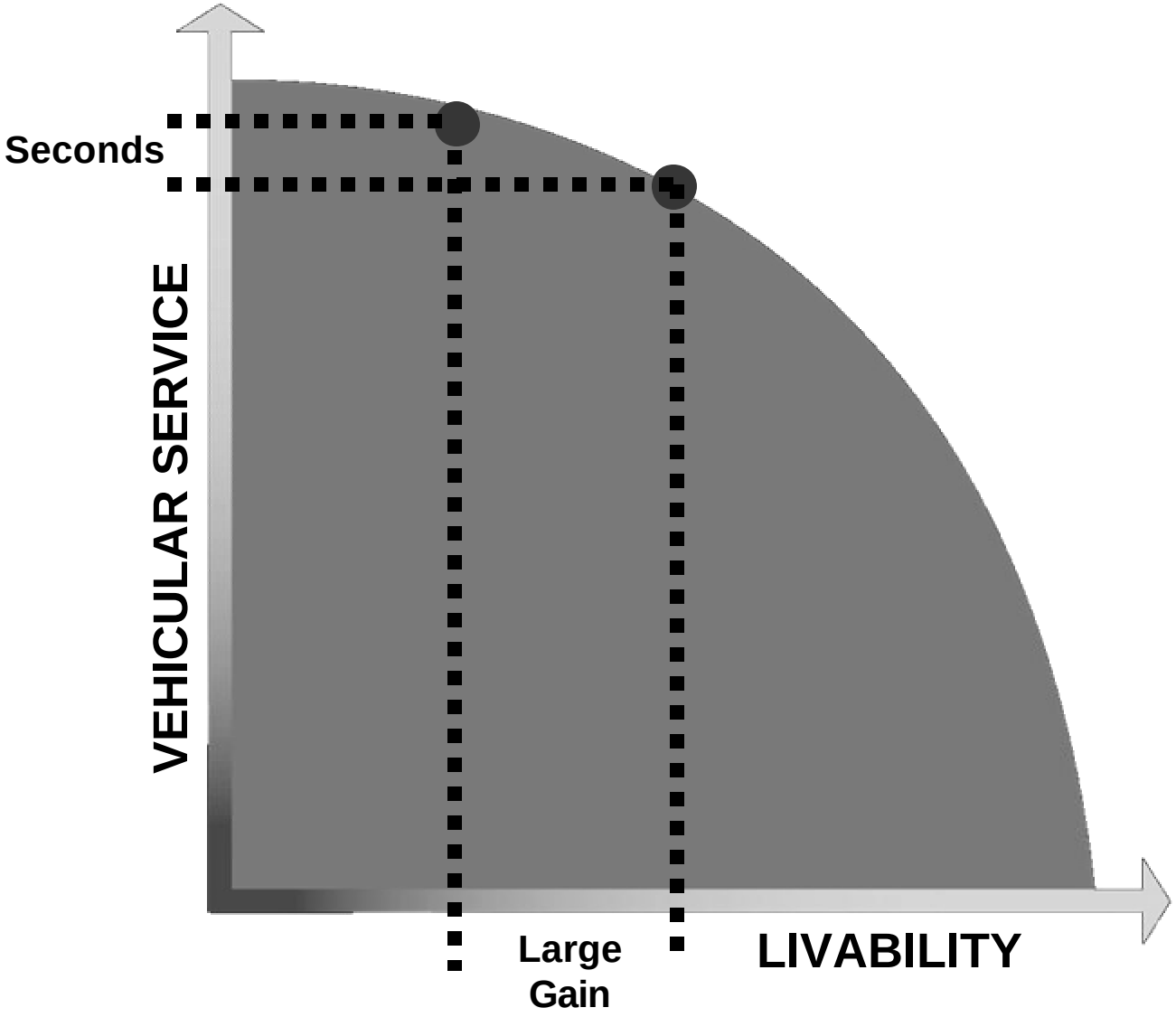
SERVICE LEVEL	DEFINITION – Operating Speed
A	Free Flow: Users unaffected by others in the traffic stream.
B	Stable Flow: Slight decline in the freedom to maneuver from LOS “A”
C	Stable Flow: Operation of the vehicle becomes significantly affected by the interaction of others in the traffic system.
D	Approaching Unstable Flow: High volumes of traffic, speeds adversely affected, and the freedom to maneuver is severely restricted.
E	Unstable Flow: Operating conditions are at, or very near capacity. All speeds are low and the freedom to maneuver is extremely difficult.
F	Exceeding Capacity: Point at which arrival flows exceed discharge flows causing queuing delays. Stoppages may occur for long periods of time because of the downstream congestion. Travel times are also substantially increased.

LOS Versus Capacity





EVALUATION CONTINUUM


Seconds
VEHICULAR SERVICE
Large
Gain
LIVABILITY

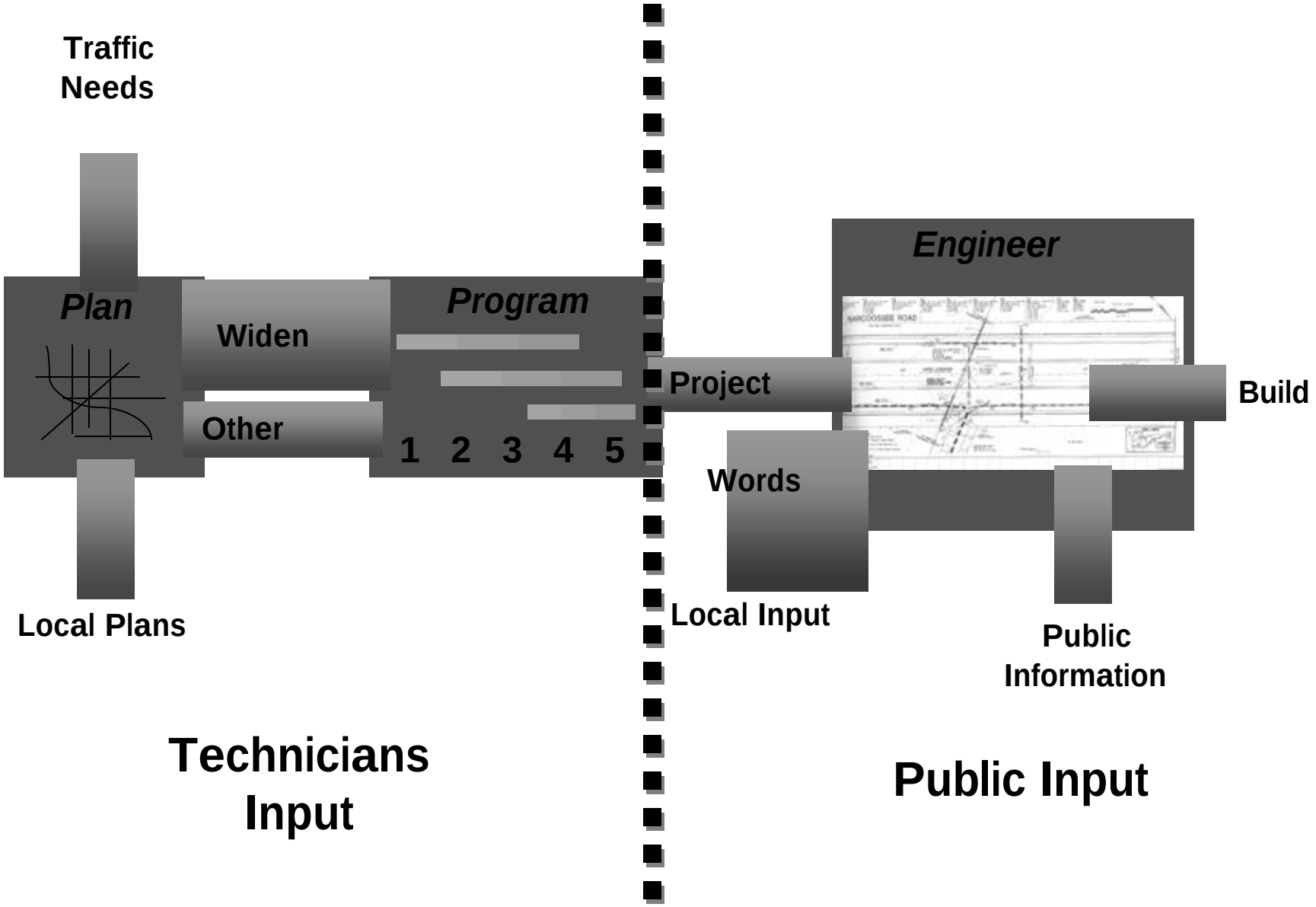

WEST
SIDE
STORY


Harris
MUSIC CO.
DISCOUNT
HEARING
PIONEER

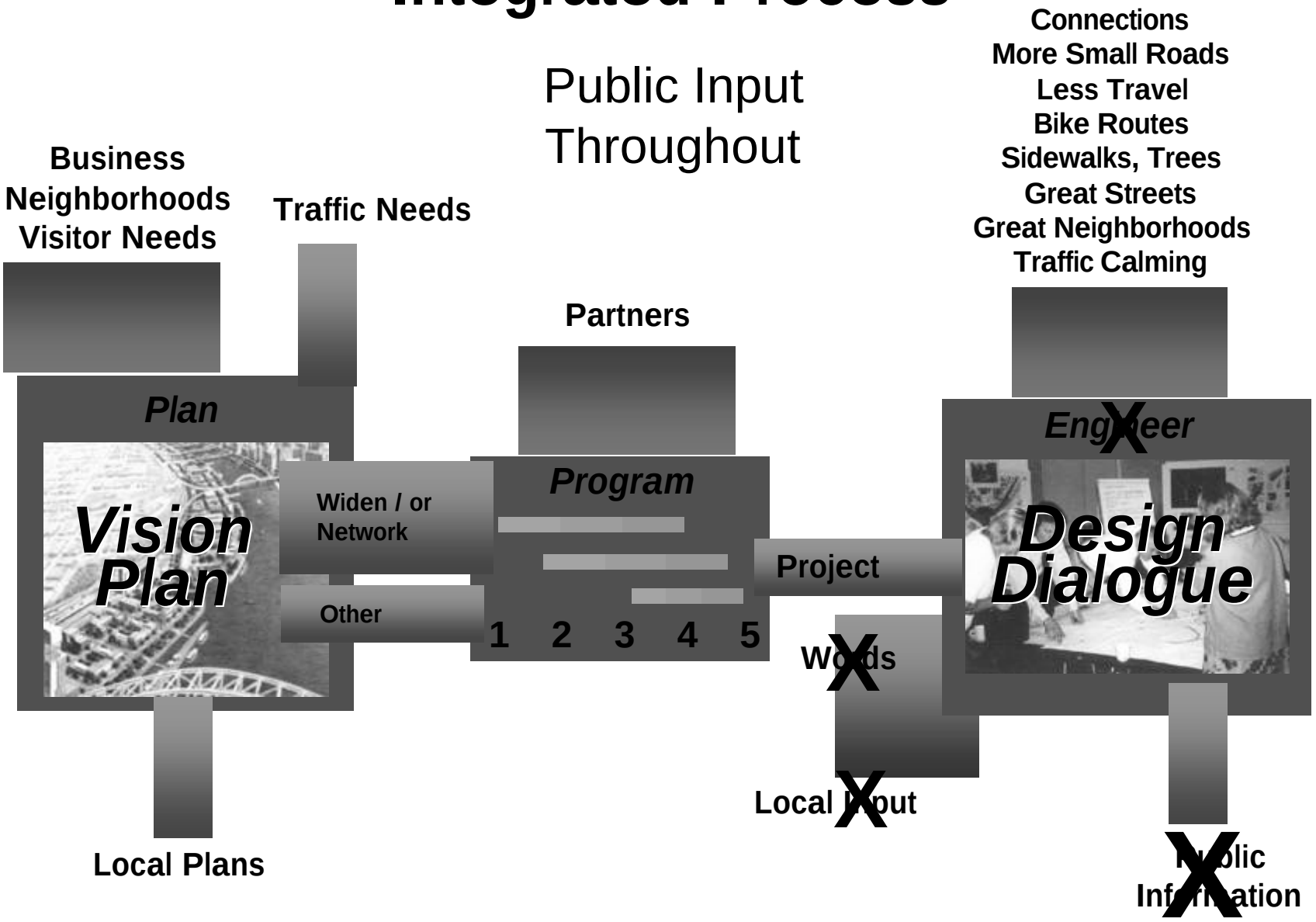

S OL
100
WEST
PALM BEACH
GREEN
MARKET
SATURDAY
MORNING

What If?

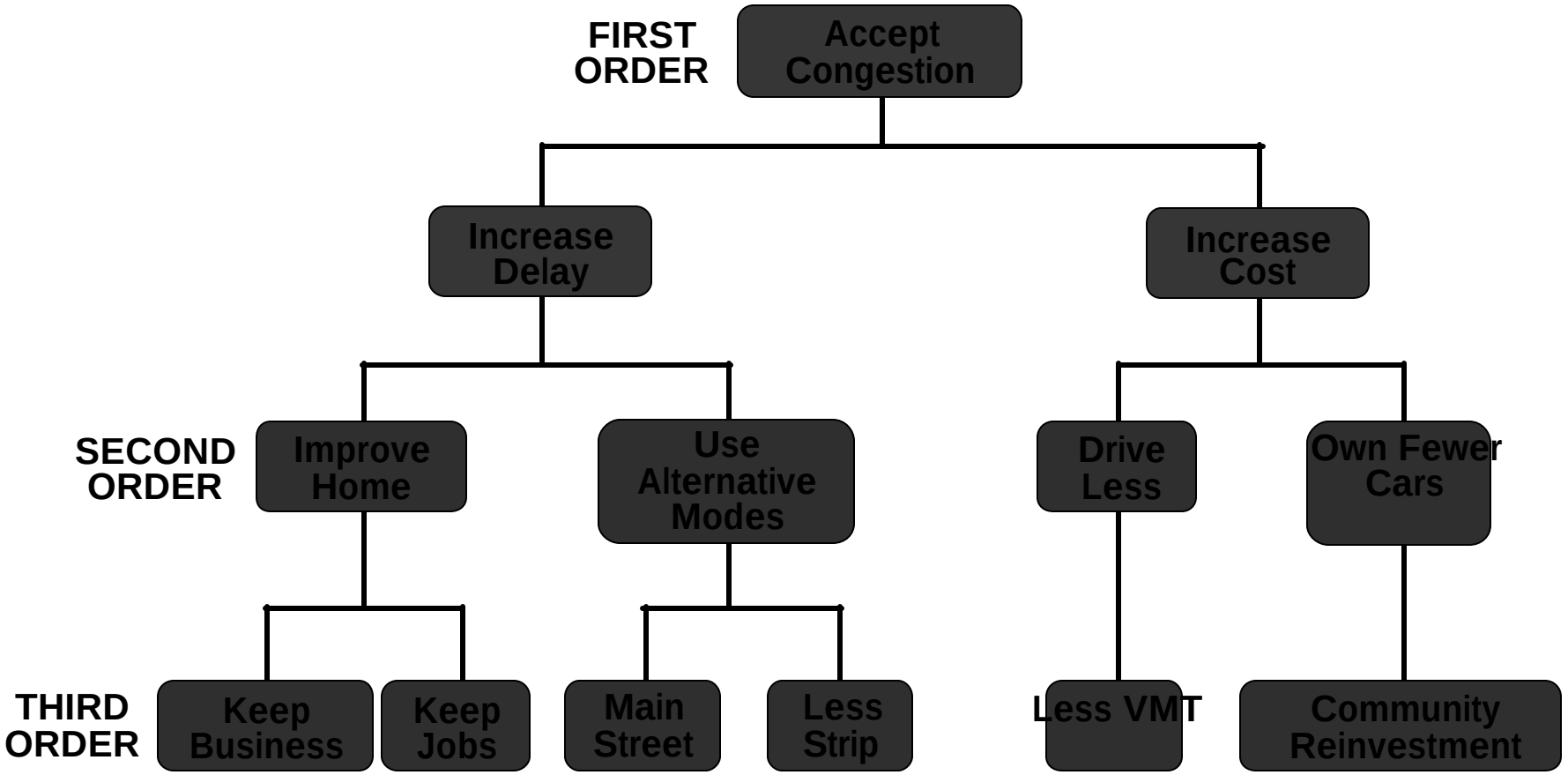
Typical Input Model

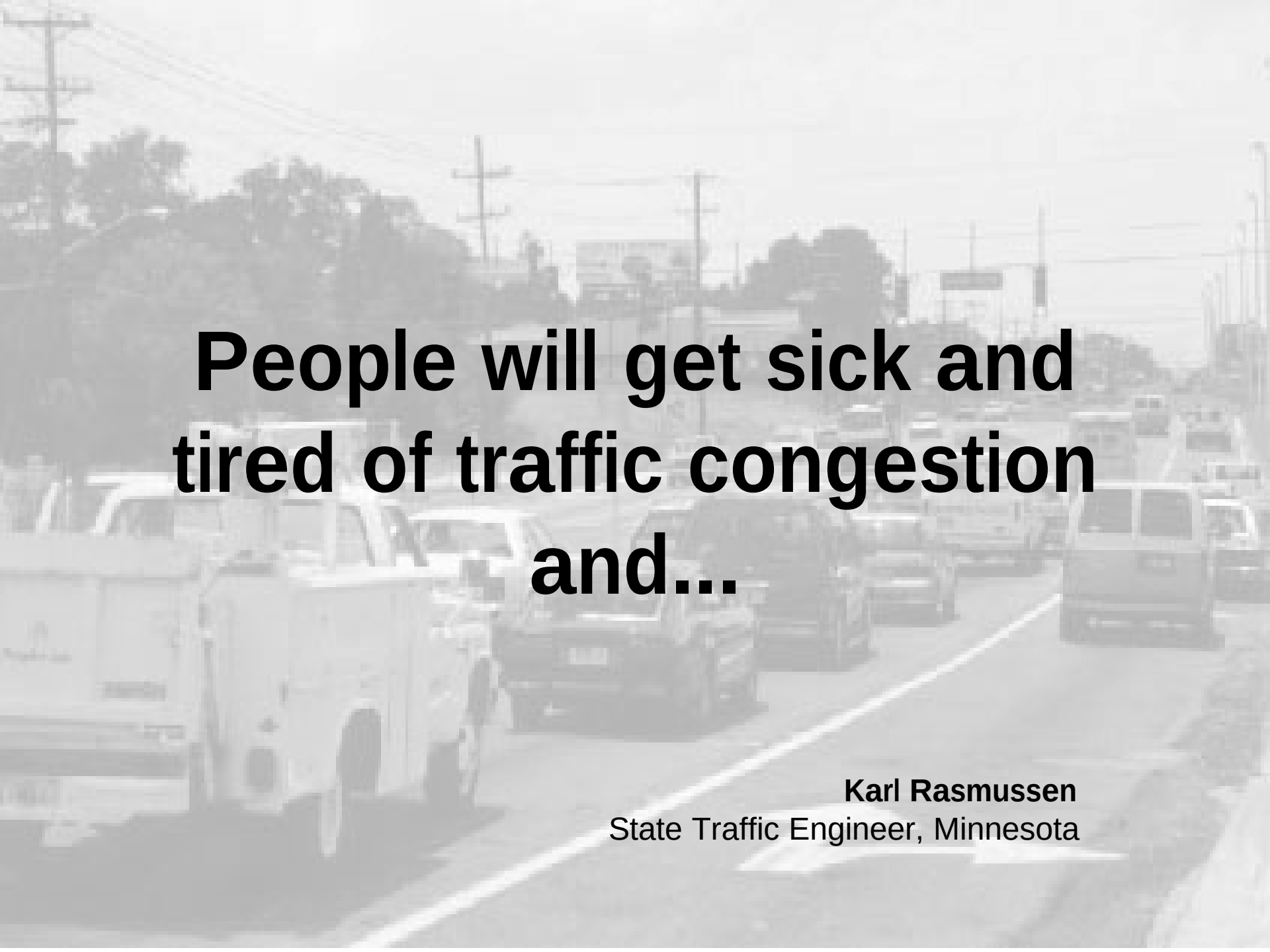


Integrated Process



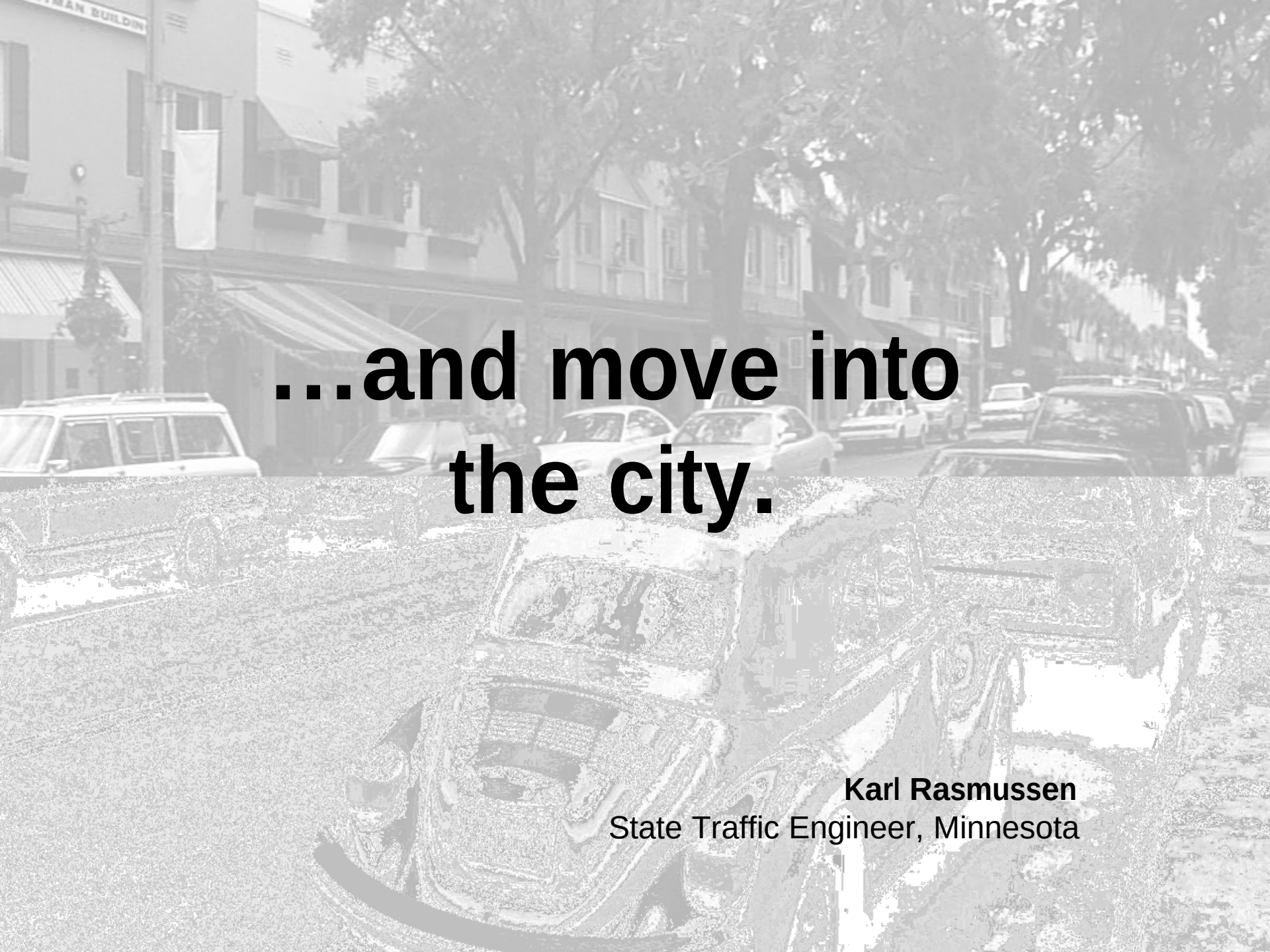
Chain of Impacts





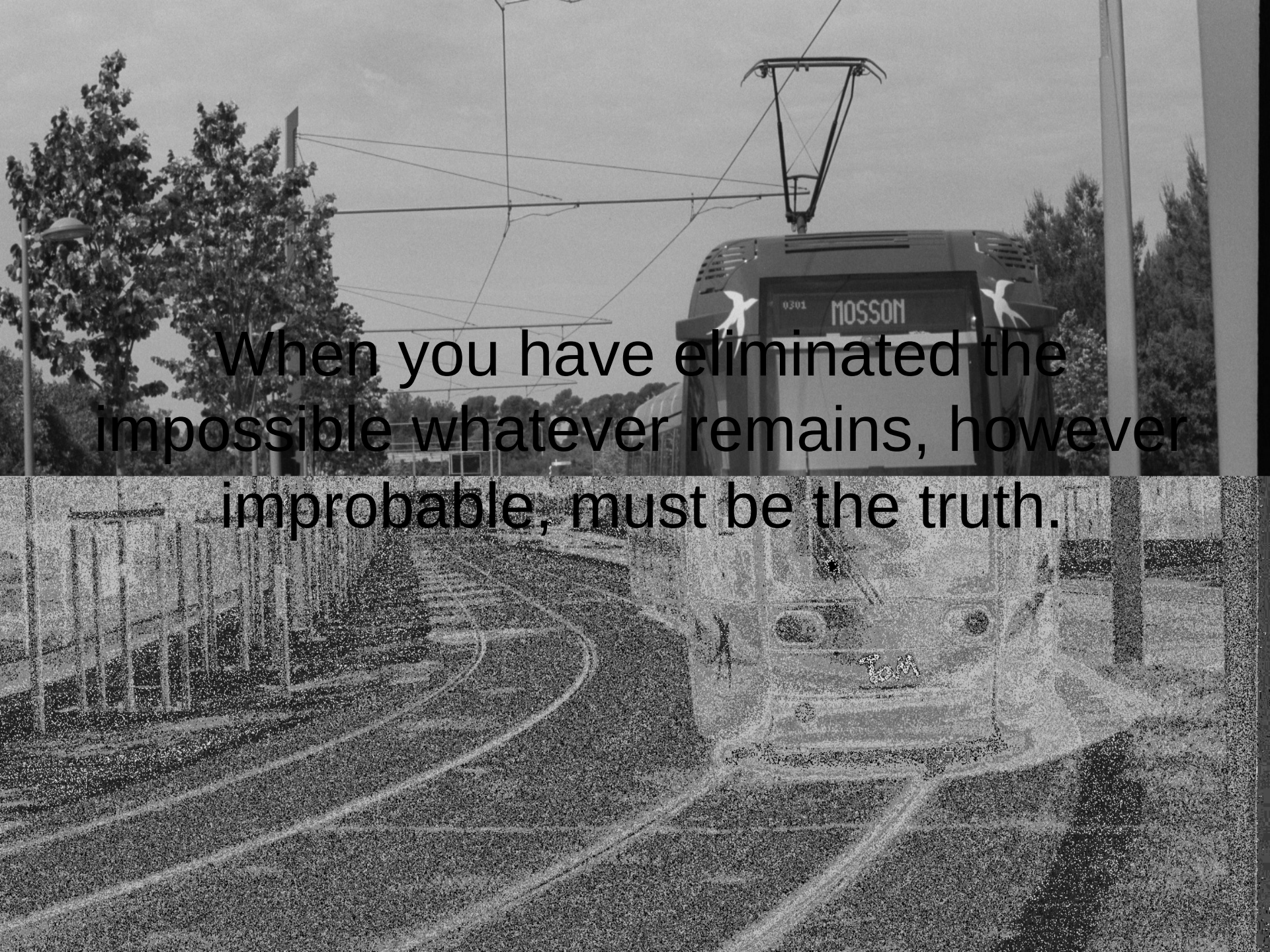
People will get sick and tired of traffic congestion and...

Karl Rasmussen
State Traffic Engineer, Minnesota



…and move into the city.

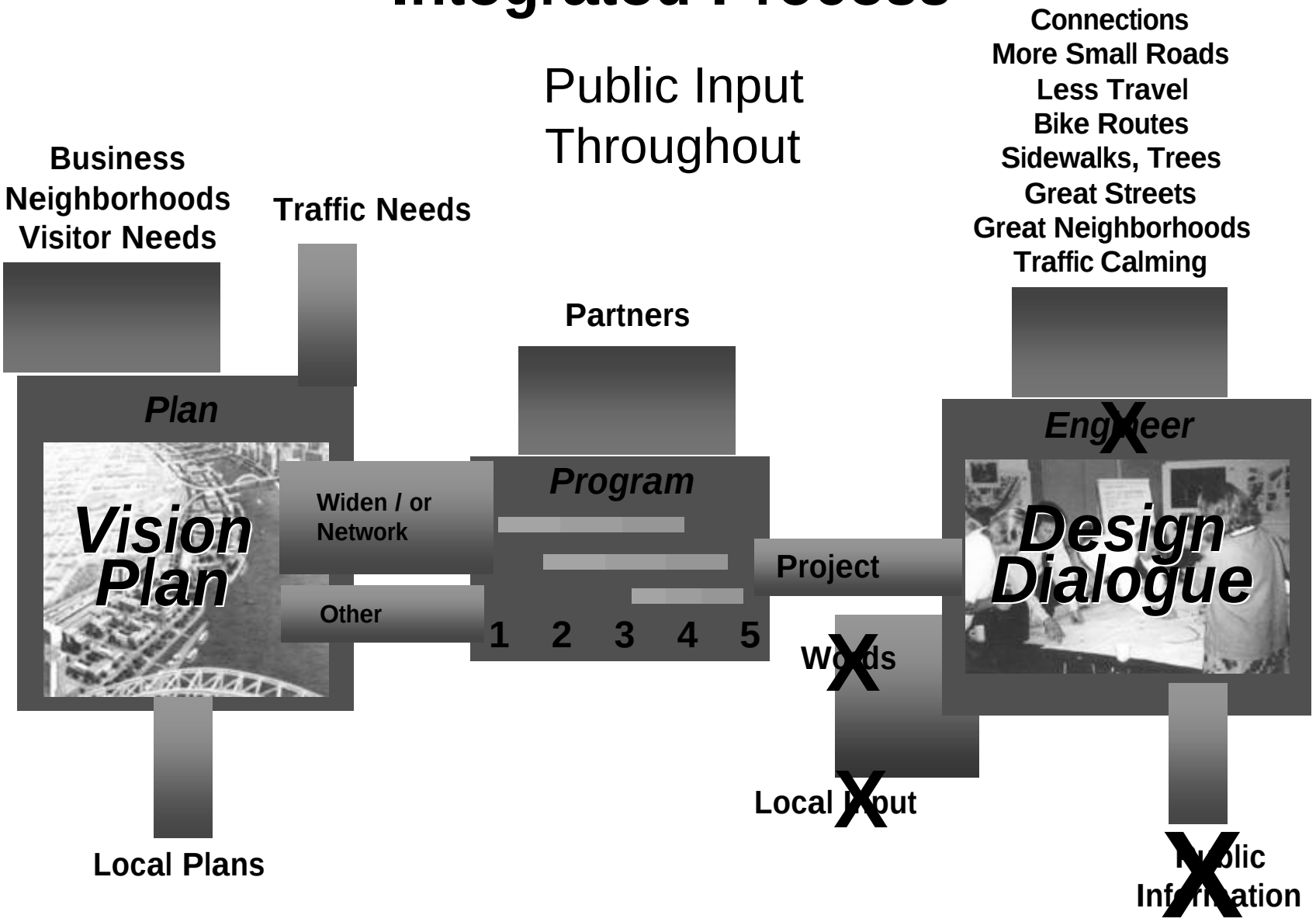
Karl Rasmussen
State Traffic Engineer, Minnesota



When you have eliminated the impossible whatever remains, however improbable, must be the truth.


FOLSOM &
← FOLSOM ST.
THE EMBARCADERO
HARRISON ST. →

Integrated Process



Typical Input Model