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Traffic Calming

Urban Transportation Planning

MIT Course 1.252j/11.380j

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Why Traffic Calming?

- The faster you go, the higher the probability of an accident, as:
  - Your vision focus narrows with speed
  - For a given reaction time, distance covered is proportional to speed
  - The faster you go, the longer the stopping distance

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Why Traffic Calming?

- The faster you go, the higher the seriousness of an accident
  - For instance, the kinetic energy of an automobile (1.2 tons at 35 mph) is at least 150 times higher than for a pedestrian (180 pounds) at 3 mph
  - Such a collision at:
    - 20 mph, means bone fractures and concussions
    - Between 20-30 mph, medium seriousness
    - More than 30 mph, very high probability of either death or permanent disability

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Why Traffic Calming?

- To avoid segregation of public spaces and maintain its livability
- Underpasses, skywalks and other “solutions”, do not provide “eyes on the street”

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Traffic Calming: How?

- When you drive at 30 mph, you tend to focus your sight far ahead
- And you narrow the sight area
- You fail to see the surroundings

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Traffic Calming: How?

- But if you drive at 20 mph, you start to see what lies on the sides

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Traffic Calming: How?

- The basic idea is to change the perceptions of the driver through the introduction of new physical features
- These **self-enforcing** features tend to break the infinite continuity that encourages speed with or without speed warnings

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Traffic Calming: How?

- Raised crosswalks
- Narrower pavement widths
- Chicanes through urban furniture or parking
- Changes in the pavement texture
- Mini-roundabouts
- Cul-de-sacs
- Eliminating some movements
- *Civilized* green waves
- ……

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Traffic Calming: How?
Raised crosswalks

- Double function
- You accommodate to gradient:
  - 7% for 40-45 km/hr
  - 10% for 30 km/hr
  - 12% for 25 km/hr or less
- Every 60-100 meters plus proper warning
- The top needs a minimum width, specially for buses

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Traffic Calming: How?
Raised intersections

- The automobile finds itself in neutral grounds...

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Traffic Calming: How?
Bulb-outs

- Pros:
  - Decrease exposure
  - Higher visibility specially for children
  - Easy implementation

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Traffic Calming: How?

Narrower pavement widths

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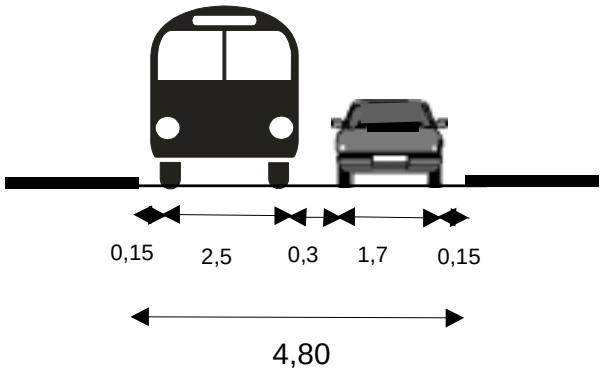
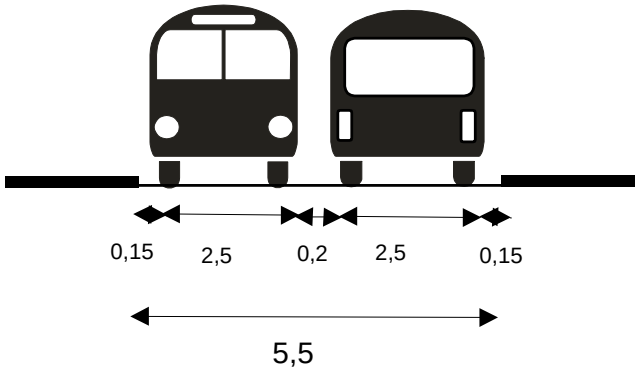
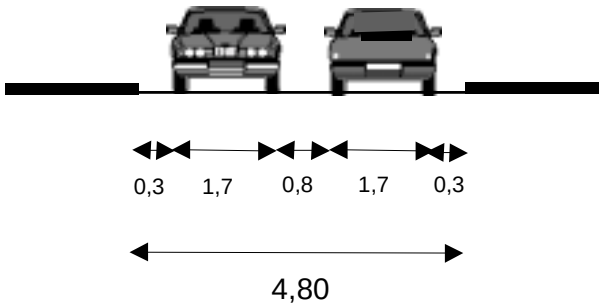
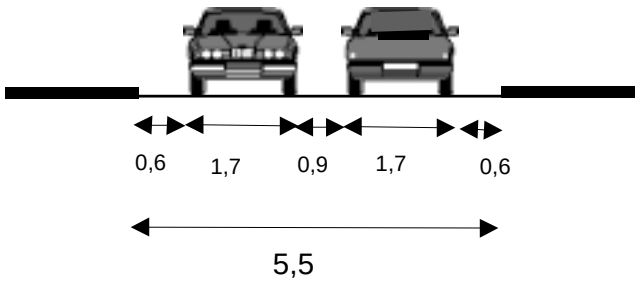
Traffic Calming: How?

Narrower pavement widths









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Traffic Calming: How?

Narrower pavement widths

Nothing like a bucket of paint

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Traffic Calming: How?
Narrowing the pavement

You could rearrange parking

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Traffic Calming: How?

Eliminating road lanes

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Traffic Calming: How?

Mini-roundabouts

They work!

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Traffic Calming: How?

Or all of the above

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Traffic Calming: How?

Eliminating some movements (i.e. in a roundabout)

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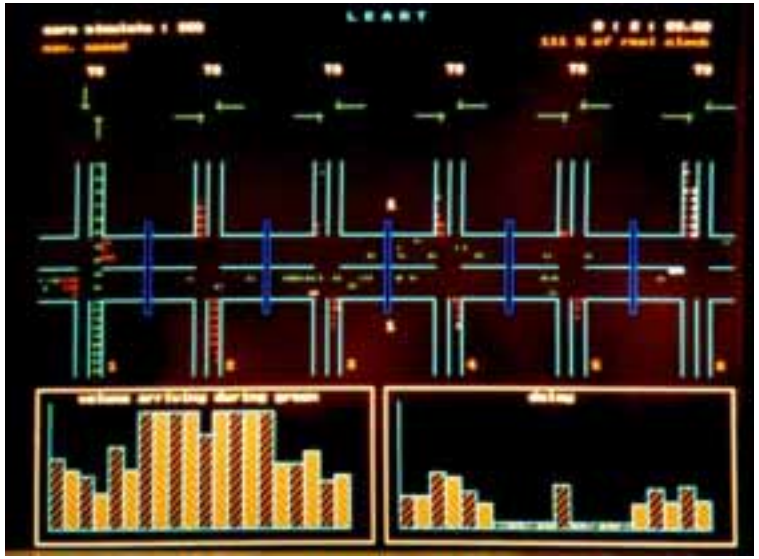
Traffic Calming: How?

Civilized Green Waves



They need low cycles to avoid late-comers driving fast (at night)

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Traffic Calming: How?
Civilized Green Waves

Plus often changes in horizontal alignment, refuge islands, narrowing the road width...

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Traffic Calming: How?
Civilized Pedestrian signals

- Longer timing for pedestrians
- Lower total cycles
- Green waves for pedestrian movements

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Traffic Calming: How?
Narrowing the pavement

- Improving public spaces:
  - New urban furniture, including trees
  - New activities
  - Weather shelters to encourage people use of the streets

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Traffic Calming: How?

- **Not an end by itself, just the means to an end**
- It must be accompanied by other measures to improve the urban environment so as to encourage more pedestrians

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Design Criteria

- Including other important issues:
  - Location
  - Self-enforcement
  - Liability
  - Reversibility
  - Public participation
  - Overall traffic scheme
  - Traffic deviated to other areas

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Location

- Sensitive areas:
  - Schools
  - Transit stations
  - Senior citizens
  - Areas with high accident rates
  - High speeds eg.transition areas from the expressway into the urban network

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Traffic Calming: The Process

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Not an easy process at the beginning

My good friend the city engineer…

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But once you begin...

- There is not enough money to accommodate all the requests
- The best is the change in behavioral patterns

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Look for an easy winner…

- Nothing like a school

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Once they try...

- “Bulb-outs ”... everywhere
- Today a pedestrianized plaza

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Always go easy at the beginning...

- Even if you have to cheat a bit like my good friend Jan Gehl...

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In a nutshell, ten rules

1. Every change is hard to implement
2. Start by the easiest job
3. You need allies
4. You have to minimize risks
5. Technical competence a must
6. Not isolated measures, but packages
7. Short term results, a must
8. But don't forget to plant a few seeds
9. Everyone sees things differently
10. Success is hard to measure

But if you want, you can!