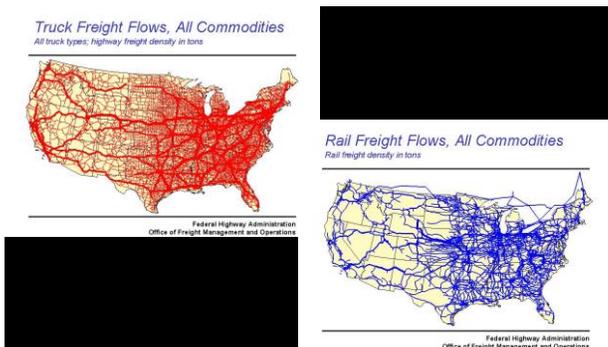
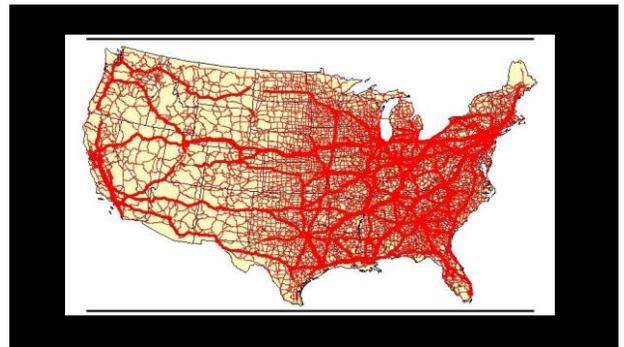
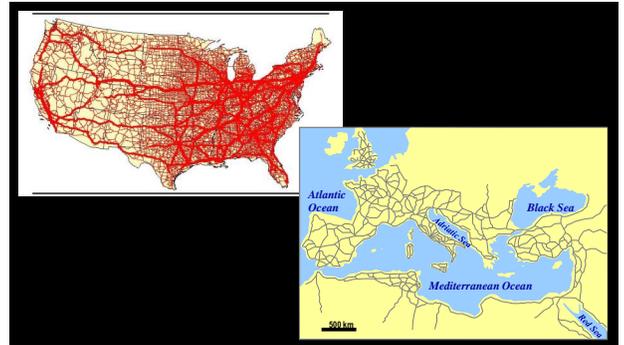


# REDES DE TRANSPORTE E A ESTRUTURA URBANA

STT0182 Mobilidade Urbana e Redes de Transporte

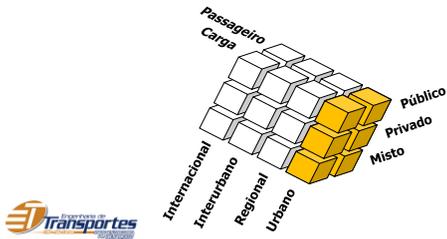
Prof. Antônio NÉLSON Rodrigues da Silva

UNIVERSIDADE DE SÃO PAULO  
Escola de Engenharia de São Carlos  
Departamento de Engenharia de Transportes

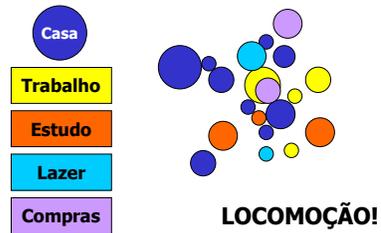




## SISTEMAS DE TRANSPORTES



## O TRANSPORTE URBANO



# SISTEMA VIÁRIO





# URBANO X RURAL

## CARACTERÍSTICAS DAS VIAS

FONTE: Moretti, R. S. Loteamentos: Manual de recomendações para elaboração de projeto. São Paulo: IPT, 1986.

## URBANO

## RURAL

## URBANO

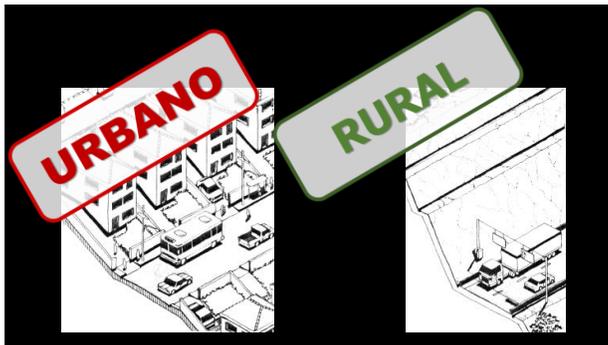
## RURAL

# URBANO X RURAL

## CARACTERÍSTICAS DE IMPLANTAÇÃO

FONTE: Moretti, R. S. Loteamentos: Manual de recomendações para elaboração de projeto. São Paulo: IPT, 1986.

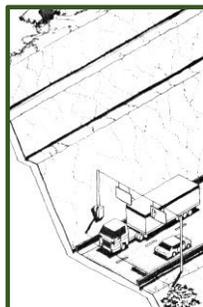
# TERRAPLENAGEM



## URBANO

CORTES E  
ATERROS  
LIMITADOS  
PELO ACESSO  
ÀS  
EDIFICAÇÕES

**RURAL**  
CORTES E  
ATERROS  
LIMITADOS  
PELA  
ESTABILIDADE  
DO TALUDE

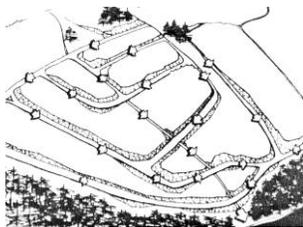
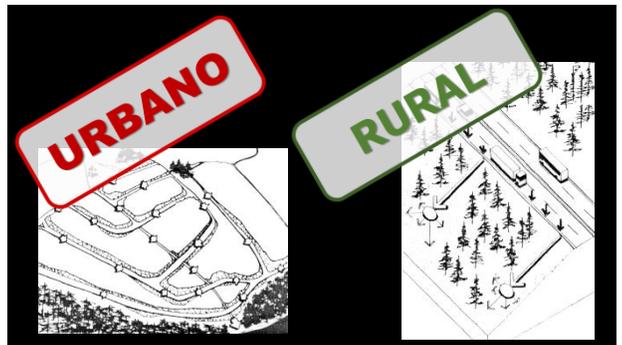


# URBANO X RURAL

## CARACTERÍSTICAS DE IMPLANTAÇÃO

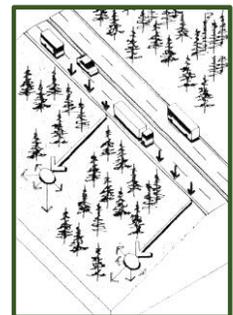
FONTE: Moretti, R. S. Loteamentos: Manual de recomendações para elaboração de projeto. São Paulo: IPT, 1986.

# DRENAGEM



**URBANO**  
DIFICULDADE  
DE  
LANÇAMENTO  
DAS ÁGUAS  
CAPTADAS

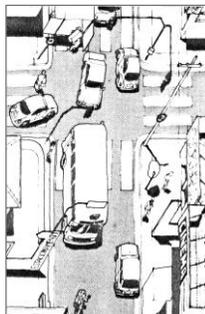
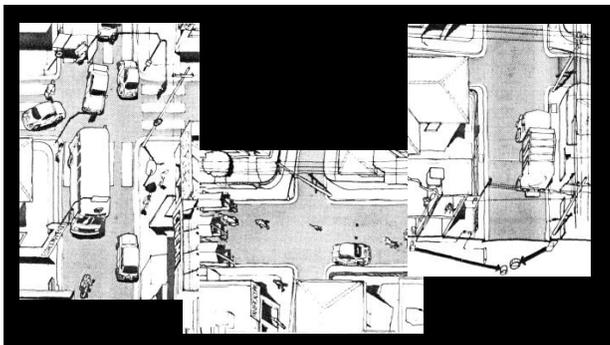
**RURAL**  
MENOS  
PROBLEMAS NO  
LANÇAMENTO  
DAS ÁGUAS  
CAPTADAS



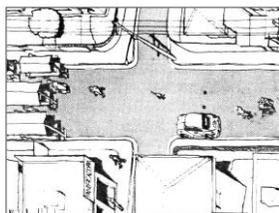
# FUNÇÕES DO SISTEMA VIÁRIO

# CIRCULAÇÃO APENAS?

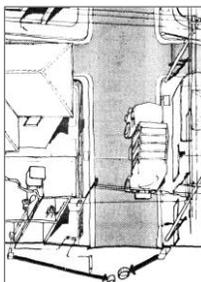
FONTE: Moretti, R. S. Loteamentos: Manual de recomendações para elaboração de projeto. São Paulo: IPT, 1986.



- CIRCULAÇÃO DE VEÍCULOS E PEDESTRES
- IMPLANTAÇÃO DE EDIFICAÇÕES
- IMPLANTAÇÃO DE EQUIPAMENTOS

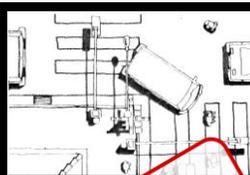


- COMÉRCIO
- ESTACIONAMENTO
- LAZER



- REDES DE INFRAESTRUTURA

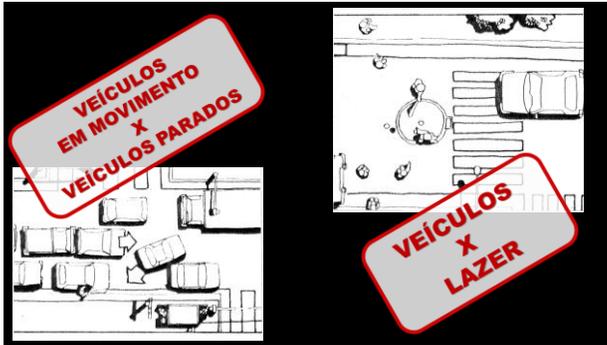
# CONFLITOS



VEÍCULOS  
X  
PEDESTRES

VEÍCULOS  
X  
USO RESIDENCIAL

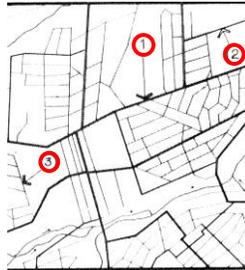




# CONFLITOS IMPORTANTES

## HIERARQUIA VIÁRIA PROJETO GEOMÉTRICO

### HIERARQUIA VIÁRIA



1. ARTERIAIS
2. COLETORAS
3. LOCAIS

### HIERARQUIA VIÁRIA

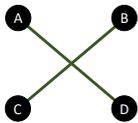
- REDUZ CONFLITOS
- REDUZ CUSTOS
- HARMONIZA A CIDADE





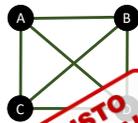
# REDE VIÁRIA

## MENOR CUSTO DE CONSTRUÇÃO



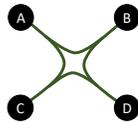
**ALTOS CUSTOS DE VIAGEM**  
**AB, AC, BD e CD**

## MENOR CUSTO DE UTILIZAÇÃO



**ALTO CUSTO OPERACIONAL**  
**ATIVIDADE**

## REDES HÍBRIDAS



**SOLUÇÕES INTERMEDIÁRIAS**

**ALTA COMPLEXIDADE**

**DEZENAS, CENTENAS**  
**OU MILHARES DE NÓS**  
**E DE LIGAÇÕES E**  
**ARCOS**

## TÉCNICA DO CAMINHO MÍNIMO

**MENOR TEMPO**  
**TOTAL DE VIAGEM**

# APLICAÇÕES



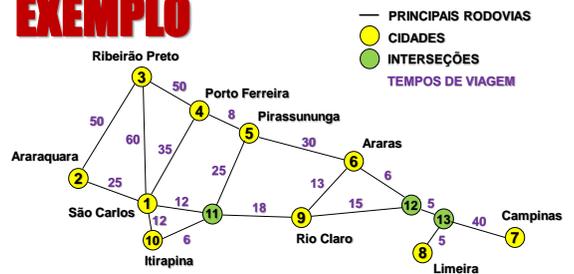
# APLICAÇÕES

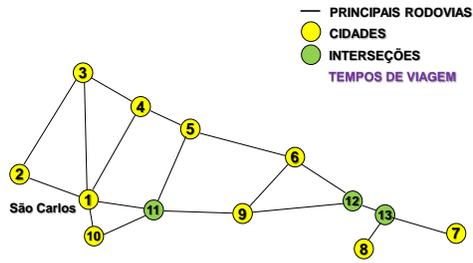


**PROCEDIMENTO QUE FORNECE UM RESULTADO ESPECÍFICO EM UM NÚMERO FINITO DE PASSOS**

**ALGORITMO DE DETERMINAÇÃO DOS CAMINHOS MÍNIMOS**

## EXEMPLO



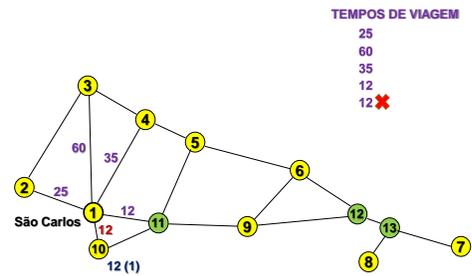
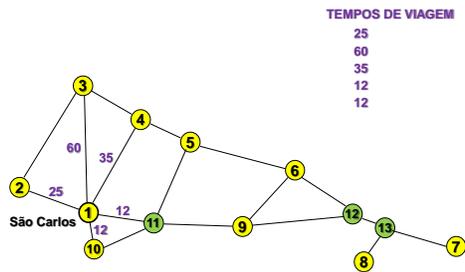


# ÁRVORE DE CAMINHOS MÍNIMOS

## A PARTIR DO NÓ 1

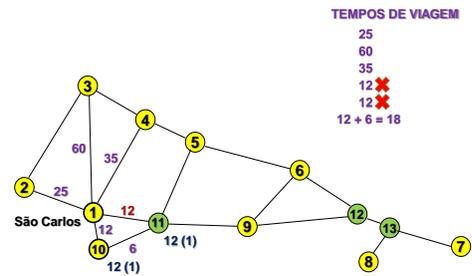
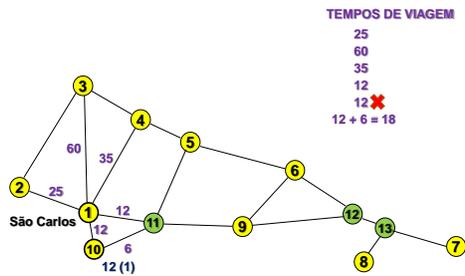
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56



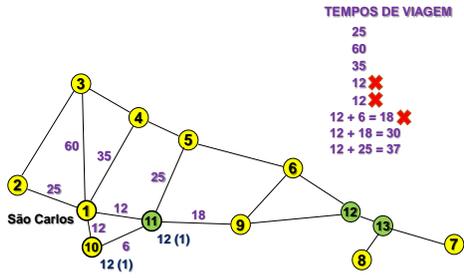
57

58

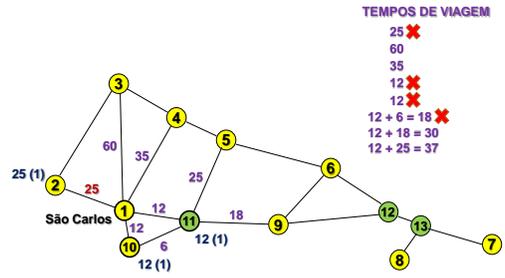


59

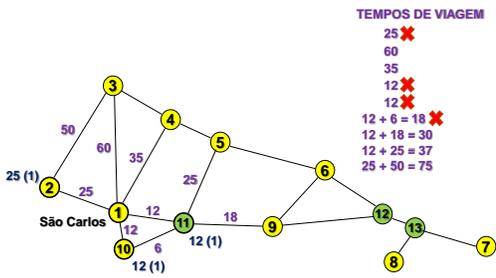
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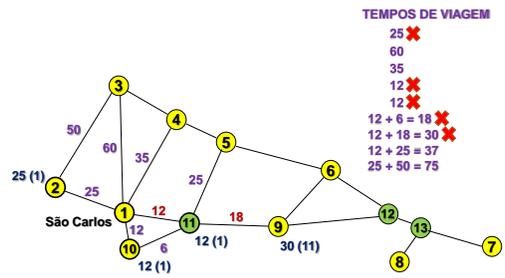
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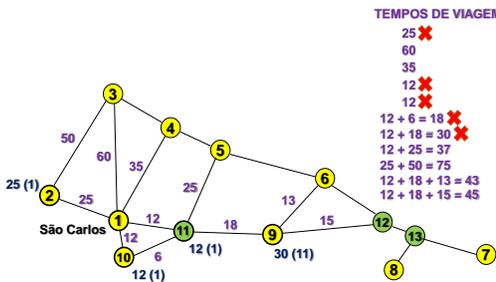
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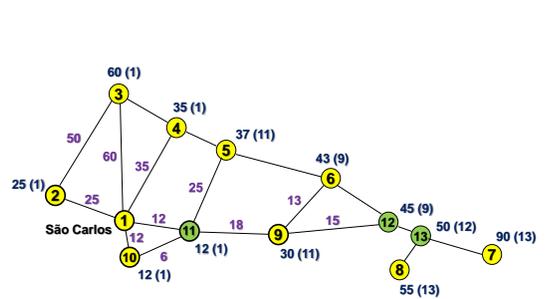
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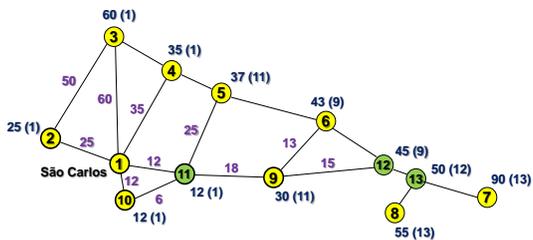
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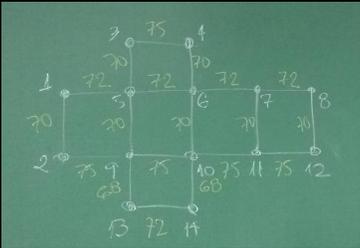
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67



## EXERCÍCIO - ÁRVORE DE MENORES CAMINHOS



GRUPO A 1, 8

B 2, 9

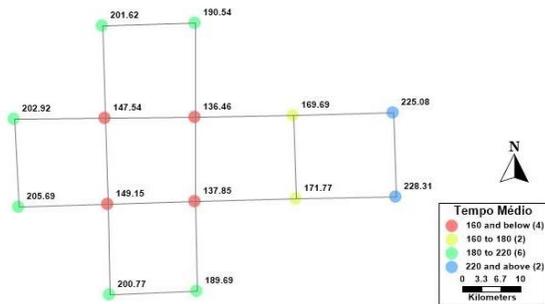
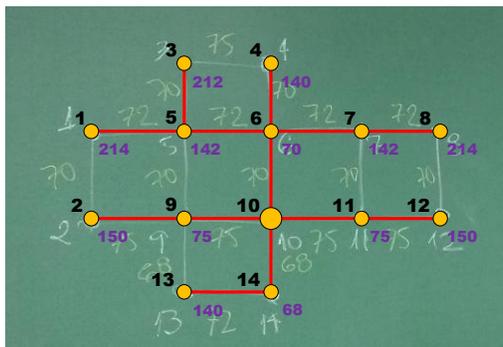
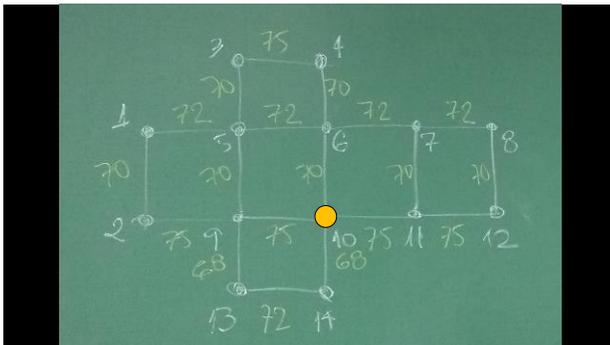
C 3, 10

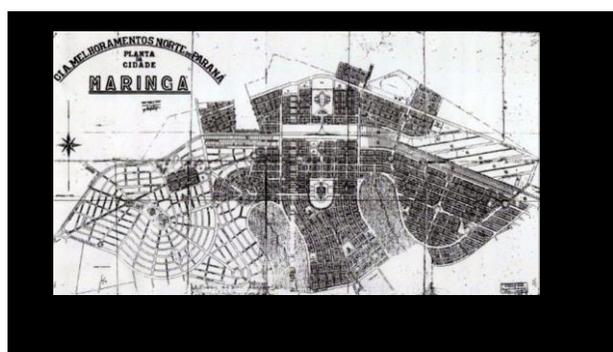
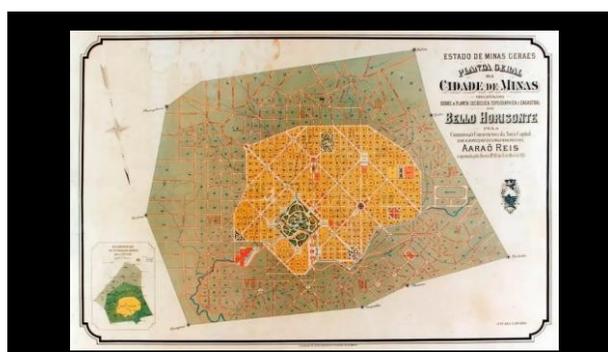
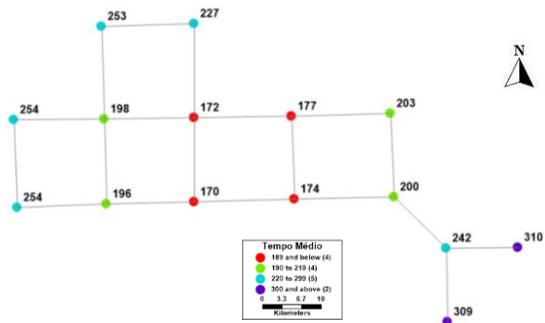
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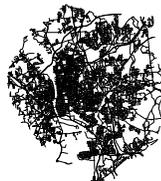
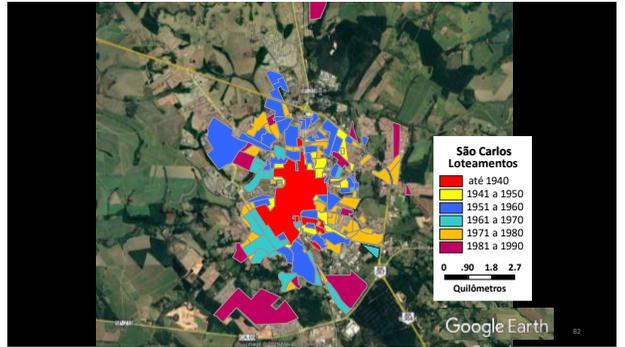
E 5, 12

G 6, 13

H 7, 14







Columbus, EUA

**DISPERSA**



Eindhoven, Holanda

**COMPACTA**

