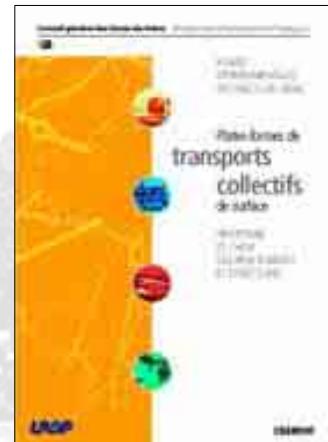


Overground collective transport platforms : Assessment and technical choices



ASSOCIATION MONDIALE DE LA ROUTE
WORLD ROAD ASSOCIATION

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Overground collective transport platforms: Assessment and technical choices The procedures for Hauts-de-Seine county



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- Ø Part 1 : Economic presentation
- **Part 2: The investment programme of Hauts-de-Seine County Council**
- **Part 3 : The response of Hauts-de-Seine County Council**
- **Part 4: The guide to “collective transport platforms”**

Key statistics on the Hauts-de-Seine



- Population : 1,428,881 (1999)
- Area : 176 km²
- 36 towns
- GDP : 90 billion €
- Employment : 900,783 earners
- Unemployment rate : 9.5% HDS à 10.1% IDF - 10.2% Fr (1st quarter 2005)
- The Hauts-de-Seine is ranked n°1 in France in terms of headquarters with 6,250 and also the leading county for exports.

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Major Business Segmentation

1 - Services	ø 183 742 employees
2 - New Technologies	ø 70 962 employees
3 - Health	ø 62 803 employees
4 - Chemical industry	ø 32 387 employees
5 - Finance	ø 31 345 employees
6 - Publishing-Printing	ø 13 610 employees
7 - Automotive Industry	ø 12 479 employees
8 - Food industry	ø 9 297 employees



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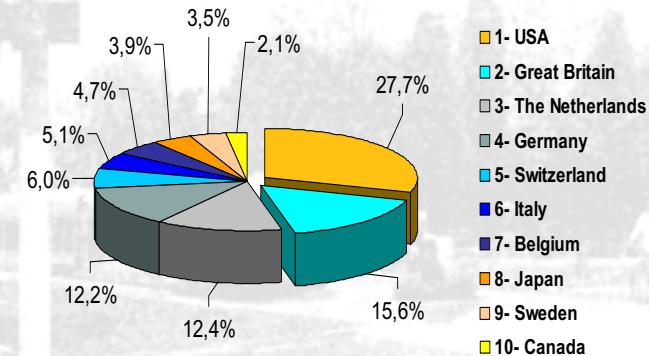
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Origin of the foreign investors in the Hauts-de-Seine

Ø Among the world's 100 largest companies, 25 of them have chosen the Hauts-de-Seine county for their world/European headquarters :

Top 10 corporate presence by country of origin



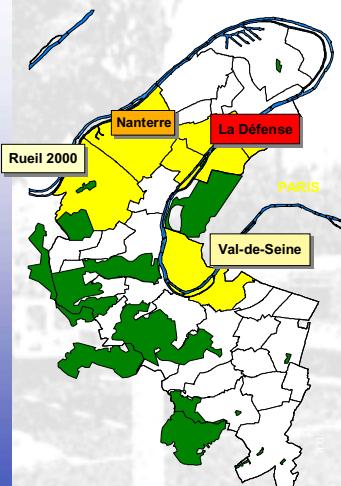
Ø Over 2 000 international businesses are located in the Hauts-de-Seine : IBM ; Toyota ; Bristol-Myers Squibb ; Coca Cola ; Philips ; Canon ; Siemens ; Schneider Electric...

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Attractive centres in the Hauts-de-Seine

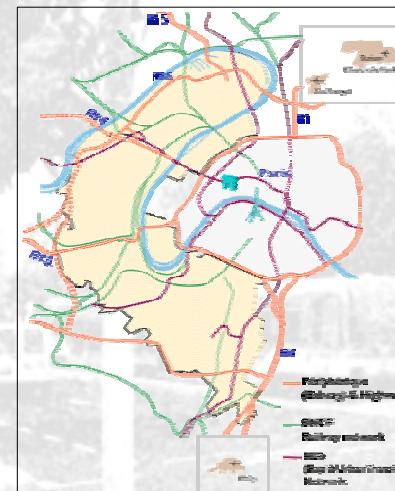


La Défense

First business location in Europe

- * 3 600 companies
- * 3.000.000 m² offices
- * more than 1.500 headquarters
- * 150.000 employees

An integrated transportation network system Paris / Hauts-de-Seine :



- 9 major interstate highways
- 3 express train lines (RER)
- 6 subway lines,
- 8 rail lines (SNCF)
- 2 international airports
- A multimodal transportation platform : Gennevilliers' Port

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The transportation network system in Hauts-de-Seine :

- 117 lines bus
- 1 tramway
- 2 tramways in project
- 350 km roads
- 51km 'own sites »



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I. What is at stake for the Hauts-de-Seine county :

1. The implementation of the Urban Transfer Plan for the Ile-de-France
2. A strong implication in the State Contract Plan – Region 2000-2006
 3. Operations of the State Contract Plan – Region with work supervised by Hauts-de-Seine County Council
4. New responsibilities: putting in place a specialised transport service for disabled people

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II. The response from the Hauts-de-Seine County Council :

1. Establishing a better adapted
2. A new technical culture :
 - A. Training efforts for staff/appropriate recruitment
 - B. Participation of work groups on the subject of communal transport/exchanges with owners and project managers. A project within the scope of the national programme of research and innovation in land transport (PREDIT): the project INDUIT (Infrastructures Durables Intégrées pour les Transports collectifs de surface) Drawing up of a technical guide on collective transport platforms

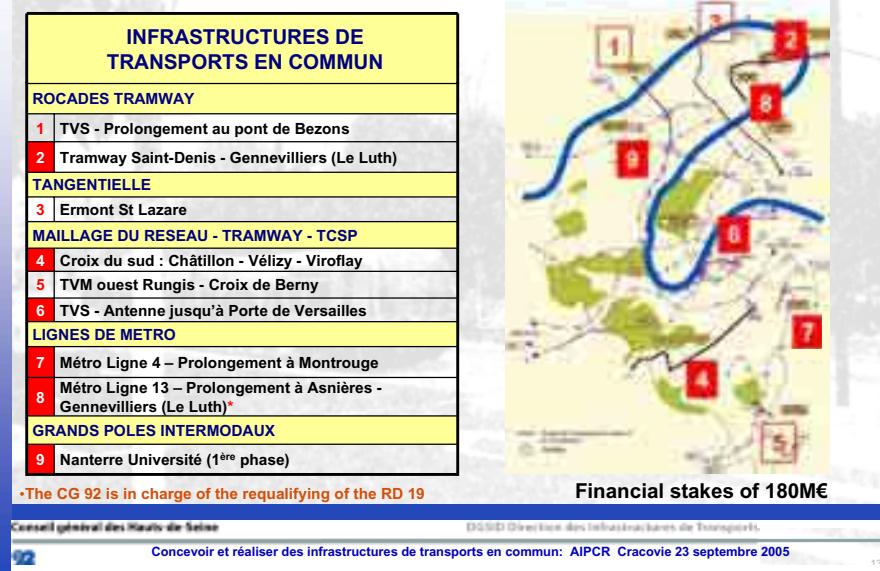
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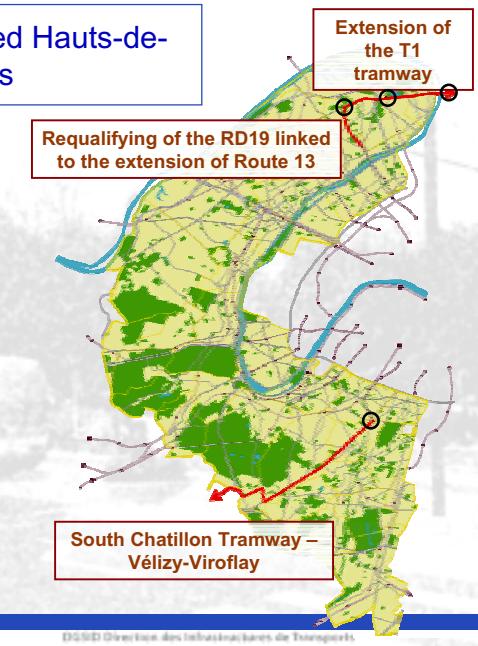
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Operations of the State Contract Plan—Region 2000-2006



Departmentally controlled Hauts-de-Seine projects



Extension of the T1

- Tramway platform: Owner RATP
- Road platform: Owner CG92
- Extension of tramway route on tracks: 4.8km with 10 stations



The Tramway South project

- Infrastructure: owner CG92
- Transport system: owner RATP
- Guided system on tyres: 14 km and 21 stations for the whole route



Extension of Route 13



- Metro: owner RATP
- Requalification RD19: owner CG92



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Implementation of the PDU

- Global thinking on the organisation of travel and formative networks in Ile-de-France: roads, waterways, rail networks
- Take into account inter-modal exchange methods
- Defining a formative BUS network in the dense zone of Ile-de-France
- 30 principal bus routes
- 18 areas

Bus routes in the Hauts-de-Seine

Numéro	Nom de la ligne	Type	Longueur (km)
1	11	Principale	10,5
2	12	Principale	10,5
3	13	Principale	10,5
4	14	Principale	10,5
5	15	Principale	10,5
6	16	Principale	10,5
7	17	Principale	10,5
8	18	Principale	10,5
9	19	Principale	10,5
10	20	Principale	10,5
11	21	Principale	10,5
12	22	Principale	10,5
13	23	Principale	10,5
14	24	Principale	10,5
15	25	Principale	10,5
16	26	Principale	10,5
17	27	Principale	10,5
18	28	Principale	10,5
19	29	Principale	10,5
20	30	Principale	10,5

Leading and managing 18 main road public transport research committees and two area committees.

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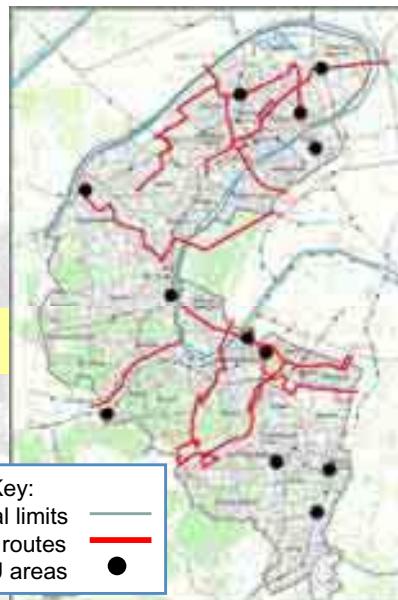
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Adjustments in favour of public transport



Road committees and area committees enlisted or finished

Key:
Local limits
Bus routes
PDU areas

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Implementation of the PDU

- Leading and managing 18 road public transport research committees
- Best sharing of the highways



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New Responsibilities

Implementation of a specialised transport system for disabled people



- Part 1 : Economic presentation
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- Ø **Part 3: The response of Hauts-de-Seine County Council**
- Part 4: The guide to “collective transport platforms”

1. Establishing an appropriate organisation with a strong emphasis on taking into account collective transport:
 - the creation of a head office for Infrastructure Services and Transport (DGSID), within **Infrastructure and Transport Management (DIT)** in November 2001
2. A new technical orientation:
 - A. Training efforts for staff
 - B. Participation of work groups on the subject of collective transport
 - C. Exchanges with owners, project managers and user associations - a project within the framework of the national programme of research and innovation in land transport (PREDIT)
 - D. Production of a technical guide relating to collective transport platforms

A. Training efforts for staff

Training by various bodies on the themes:

- Travel
- Mobility
- Collective transport
- ...

... Diffusion of information from services

... Thoughts on a road charter as well as on transport infrastructures

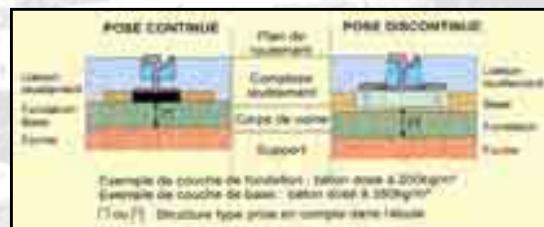


B. Work groups on the subject of collective transport and exchanges with owners and project managers



Work groups made up of:

- Hauts-de-Seine County Council
- Hauts-de-Seine Departmental Amenities Management
- Western Paris Laboratory
- Centre of Studies on networks, transport, town planning and public works
- Etc...



PREDIT: National Programme of Research and Innovation in land transport: the [INDUIT](#) project

C. Production of a technical guide relating to collective transport platforms

Multiple objectives :

- Provide technical help for projects, their elaboration and their evaluation
- Provide to Hauts-de-Seine County Council officials a 'record' of the rule book in this new technical area
- Establish a 'ground zero' of knowledge
- Provide a developing guide consistent with the thinking of other work groups on this theme
- Produce a reference tool on this theme on a regional scale for departmental technical services

Part 1 : Economic presentation

Part 2 : The investment programme of the Hauts-de-Seine County Council

Part 3 : The response of the Hauts-de-Seine County Council

Part 4: : The guide to "collective transport platforms"



Contents of this document

1. An analysis of the appeal of public transport vehicles in the commune with analysis of their characteristics compared with the highway code
2. Principles of structures and characteristics of surfaces for road systems and and tyre-guided systems
3. Overview of specific technical elements of tramways on rail with characteristics and distinctive features of structures and surfaces of platforms



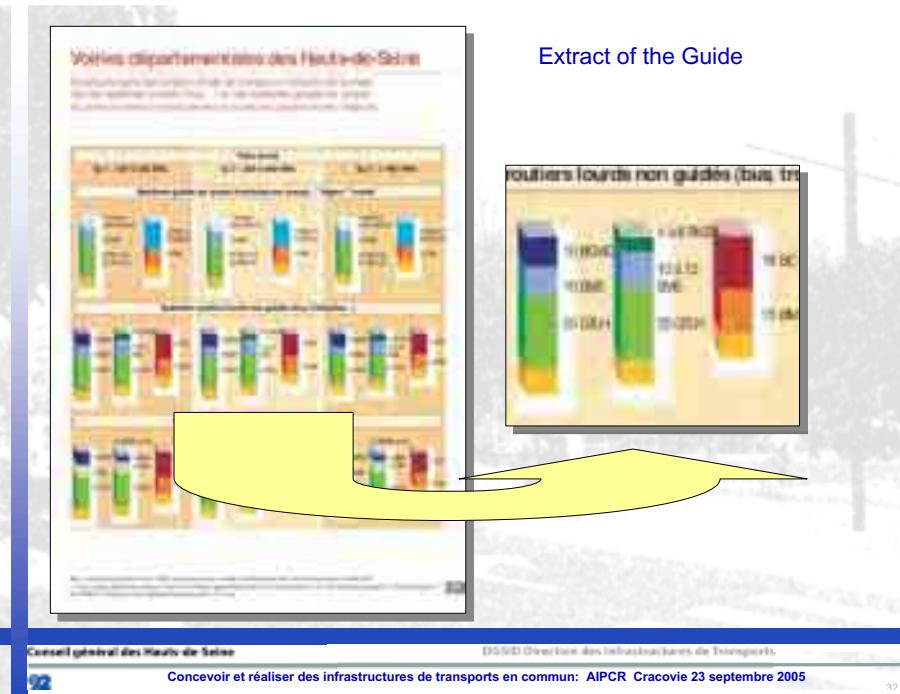
1 - Appeal of overground collective transport vehicles

- Reminder of the classification of overground public transport systems
- Bring to the fore several points having an effect on the dimensions and material of platforms
 - Speed/rate
 - Numerous stops which lead to accelerations and decelerations (distance between stations)
- Public transport vehicles with tyres compared with the highway code
 - Presentation of essential characteristics
- Maximum burden taken into account in the dimensions
 - Heavy or light road systems
 - Heavy or light tyre guided systems
 - Tramways



2 - Characteristics of structures and surfaces for road systems and tyre-guided systems

- Principles of dimensions/specifications
 - Axles of which the burden is less than those of heavy axles
 - A rationale for road specification in line with the classes of traffic volume in the directory of road structures
 - A specific formula for frequently used traffic junctions: thicker foundations
 - The necessity of choosing materials resistant to holing, heavy static loads and rutting
- Surfaces
 - Percolated and structured coatings
 - Hot-running bituminous cement
 - Bituminous cement of a heavier duty/anti-rut coating
 - Surfaces in reinforced concrete (BC and BCMC)
- A classification in three families for surfaces Rtc1, RTc2 and RTc3
- On a correctly dimensioned foundation: T1, T2 and T3
- Structure types (foundation and surface) and material specifications.



Material types and specifications



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3 - Tramways on rails: structures of platform surfaces and technical specificities :

- Techniques in constant development
- Definitions and basic data
 - rolling stock
 - track
- Fixing mechanism and track fastening
 - Constant fastening
 - Interrupted fastening
- Anti-vibration systems
 - Vibrations
 - Noise
- Overview of structures of platforms for tramways on rails
 - Examples
- Surfaces: techniques and developments
 - Modular elements/bituminous materials/concrete/turf
 - Interface track/surface
 - Drainage
- Example of structures and technical specifications of materials



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Conclusion: a twofold response

- An organisation adapted to meet the new demands in respect of public transport
- A technical system of reference made up of example documents and guides in the framework of a programme for ISO 9001-2000 certification.



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