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Mobility in Urban Areas
TC 2.1

Evaluating impacts of new mobility in urban and peri-urban areas

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Chair and members

- Chair: Andrea SIMONE (Italy)

- Members from 34 different countries (all continents involved)/66 members

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Mobility in urban areas

The urban transportation consists of several elements such as travel actors and their needs, freight planners and their needs, movement itself of people and goods, transportation facilities, transportation services and their costs. They are influenced by social and economic conditions such as income levels, social customs, administration systems and safety concerns from crimes.

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Mobility in urban areas

- Accelerate urbanization and urban expansion
- The needs to address climate change is more urgent
- A green recovery from the COVID-19 pandemic
- Accelerated application of new technologies and new models in the field of urban transportation
- Differences in travel demand in different types of countries

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Issues/groups

- 2.1.1. Accessibility and mobility facing land use in urban and peri-urban development

- 2.1.2. Integrated transportation systems: multimodality

- 2.1.3. Evaluating impacts of new mobility in urban and peri-urban areas

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2.1.2. Integrated transportation systems: multimodality

- The report contains 16 case studies from 8 countries (Belgium, China, Czech Republic, France, Italy, Japan, Korea and Uganda)
- Addresses technicians and engineers from various countries to exchange technical experiences and best practices

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2.1.2. Integrated transportation systems: multimodality

- What is an integrated transportation system?
- Explaining the current situation of urban transportation development
- Identify recommendations of optimization of road networks through better integration with other forms of transport in terms of efficiency, resilience and sustainability with multiple views (social equity, affordable cost, environmental impacts,…)
- Summarize conclusions and policy recommendations from global best practice case studies for PIARC members

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Case studies

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Case studies

- MTC with rail
- MTC without rail
- LRT
- Dedicated/Priority bus lane
- Carpool/HOV
- Micromobility
- Active Mode

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Case studies

Renovation of the railway station Schuman and creation of the multimodal hub (Brussels, Belgium)

Key findings:

(1) Improving the services of public transport, transfer time between modes was decreased, people can now travel more easily to the airport without needing their own car.

(2) Accessibility for vulnerable users

(3) Improving the connection with suburbs convinced more people to travel by train to Brussels.

Success factors:

(1) The project needed a lot of work and time. Important not to disturb the metro during this time.

(2) Collaboration was very important.

(3) The multimodal hub is located over three floors - clear signage to find way

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Case studies

Shenzhen Futian integrated transport hub (Shenzhen, China)

Key findings

(1) An effective transportation hub could play a critical role in city development (macro and micro)

(2) Scientific and reasonable planning and design are necessary

(3) "Vertical integration" (decision making, planning, design, construction to operation and management + "Horizontal integration" (transportation, land resources, finance, environment,…); government as a leader needed

(4) The planning and design of a transportation hub interior should reflect the human-centric design philosophy

Success factors

(1) Centralized and compact layout

(2) Multi-level connection and three-dimensional transfer

(3) Various traffic flows are separated without interference in each other

(4) Short transfer distance, ease and comfort

(5) Guide signs within the hub are clear and evident

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Case studies

Multi-modale transfer achieves cross-provincial city rail transit travel (Kunshan, China)

Key findings

(1) The construction of intercity urban rail transit lines can facilitate passenger travel between cities and promote integrated development.

(2) Providing P+R, bus and urban rail transit transfers, and transfers to public bicycles at urban rail transit stations will encourage people to use urban rail transit and increase passenger flow.

(3) Building intercity urban rail transit lines requires cooperation between city governments, improvements in planning and guidance, and the establishment of competent operation and management institutions.

Success factors

(1) Planning and guidance are important (working mechanism between city and province, reserving space for the construction of urban rail transit, planning supporting facilities for bus shuttles, transfers to public bicycles, P+R, and taxis.

(2) Services that focus on passenger needs are provided. Active coordination between urban rail transit and public transportation ensures consistent intervals between the two transportation modes to shorten waiting times for passengers choosing urban rail-bus transfers.

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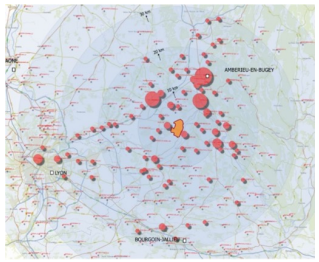
Case studies

Plaine de l'Ain, rural mobility hubs (Ambérieu-en-Bugey, France)



Key findings

(1) 1,088 carpooling requests and 708 journeys made.

(2) The development of these hubs offers credible transport alternatives to individuals with a range of services that can become daily habits.

(3) These new behaviours have consequences for the budget's household as well as for the environment and CO2 emissions.

Success factors

(1) Quick and easy hub installation

(2) Users form a community with an animation needed

(3) An app is useful

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Case studies

Creation of a carpooling lane on the A48 highway (Grenoble, France)

Key findings

(1) Today, 14 public transport lines regularly use the VRTC, with an average of 30 buses per hour and 8,300 passengers per day.

(2) The actual travel time saving is on average less than 10 minutes, but the time saving felt by the users is higher.

Success factors

(1) encourage modal shift to alternative modes (multimodal centres and carpooling platforms) and prioritise their circulation

(2) dynamic carpooling lanes to adapt to traffic and avoid motorway paralysis.

(3) communicate the benefits to users and investors

(4) good coordination between partners

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Case studies

Development of a multimodal exchange hub on the rural outskirts of Paris (Longvilliers, France)

Gare autoroutière de Briis-sous-Forges. A10 VINCI Autoroutes

Key findings

(1) The past trends demonstrate that the modal shift from the private car to public transport or shared vehicles should be important.

(2) The development of this HUB offers credible transport alternatives to individuals with a lot of services that can become daily habits.

(3) These new behaviours have consequences for household budgets as well as for the environment and CO2 emissions.

Success factors

(1) Quick and easy bus connection between local road networks and motorway infrastructure.

(2) Transport offer combined with the urban transport of the Parisian metropolis.

(3) Adaptability of motorway infrastructure to situations of congestion with the establishment of a dedicated bus lane.

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Findings

Common goals

- Reducing car traffic on congested roads
- Reducing traffic accidents
- Providing people adequate and affordable mobility alternatives

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Findings

Measures

- Car-pooling and HOV/HOT lanes to increase the number of passengers in a car
- Improving service levels of public transport by exclusive bus lanes and improvement of transfer between public transport modes
- Park and ride including park and BRT ride or park and expressway bus ride which connect low population density areas
- Promotion of active modes including walking and cycling
- Development of MTCs
- Use of green modes of transport including e-cars, fuel cell cars, buses, railways, etc.

Findings

MTC – types

There are several types of MTCs which correspond to their locations along the trips using them and availability of other transport modes particularly rail transport with high speed and capacity:

- MTCs located at a railway station in the city centers or inner-city areas. MTCs of this type provide easy transfer between transport modes. The transfer can be between railways and/or between railways and other modes. This type enhances the service levels of mode-mixes from the trip origin to the destination. This will improve the competitiveness of the mode-mixes over driving cars throughout the trip and reduce the car traffic. (4)

- The second type comprises MTCs located at a railway station in the middle or near suburban end of the trip route where people transfer from transport modes suited to less densely populated areas, e. g. private cars and buses, to railways that are suited to densely populated areas. The case of park and express-bus ride is included in this type although MTC is simple with car parks and express-bus stops and is not located at a train station. (6)

- The third type features small MTCs located at local points, e. g. train stations or carpooling line junctions, near from trip origins. This type provides people with a wide range of alternative modes of transport by locating MTCs within a reasonable distance from the origins of trips and the use of private cars is minimized. It incorporates ICT to provide an integrated mobility service to people through mobile phone applications.

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Swiss case studies: „Schnittstellenprogramm“ Drehscheiben

MTC‘s close to the center

Geneva: Carouge-centre

Vevey-Montreux

Solothurn East

Lenzburg

Lugano South

Lucerne-Rothenburg

Key findings

(1) Modal shift potential depends on distance to center (shorter=better)

(2) The proximity of existing junctions allows direct access to multimodal interfaces

(3) Dense public transport offer required (S-Bahn: min. 20 min/bus: min. 15 min)

(4) Desired combination with other attractive offers

Success factors

(1) Low interface relief, potential for traffic reduction in cities (minus 15-25% in peak hours).

(2) The cost of parking in the center has almost no effect.

(3) Potential to free up parking spaces for other uses - Rebound effect.

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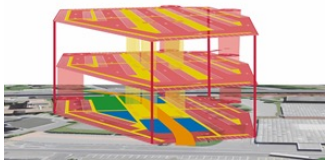

Swiss case studies: „Schnittstellenprogramm“ Drehscheiben decentralized MTC‘s

- Wettswil: Kreuz Zürich-Süd
- Hüntwangen: Wil Bahnhof
- Winterthur: Reutlingen

<u>Key findings</u>

(1) Feasibility ex-nihilo not guaranteed: problem of localization, of right-of-way, of access...

(2) Low potential, even near a motorway junction and a residential area (e.g. Wettswil).

(3) Unfavorable mode change at the beginning of the journey

<u>Success factors</u>

(1) Significant accompanying measures required at destination.

(2) Strong public transport offer necessary to guarantee its attractiveness.

(3) This offer already exists at the SBB stations - Difficult to do better than the existing offers

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Thank you

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