Strategic Mobility Planning in Dresden between trends and transformations

St. Petersburg 29.10.2019

City of Dresden Urban Planning Office
About Dresden
About Dresden - Transport System

- 1,470 km roads, 410 km bicycle ways
- 12 tram and 28 city bus lines
- 3 suburban railway lines and 7 regional train lines
- Connected with Highspeed-Train-Network (ICE)
- 7 highway connections
- 9 Elbe bridges, 3 Elbe ferries, 2 historic railways
About Dresden - Mobility

- 1.95 million trips and 7 million trip-kilometres per day
- 39% of all trips by car, 22% by public transport, 12% by bicycle, 27% by foot
- In average: 3.55 trips per person and day, average length 5.8 km
- 96,000 commuters inbound, 56,000 commuters outbound daily
- 163 million pt-passengers per year and 570,000 on workdays
Mobility indicators - 01
increase of car ownership but stagnation on motorization*

*from 2008 to 2016: GDP increase of 18.5% up to 63,783 € per employee

<table>
<thead>
<tr>
<th>Year</th>
<th>Inhabitants</th>
<th>Motorization</th>
<th>Private Cars</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>506,628</td>
<td>403/1000 inh.</td>
<td>198,641</td>
</tr>
<tr>
<td>2009</td>
<td>511,138</td>
<td>403/1000 inh.</td>
<td>202,671</td>
</tr>
<tr>
<td>2010</td>
<td>517,168</td>
<td>403/1000 inh.</td>
<td>206,825</td>
</tr>
<tr>
<td>2011</td>
<td>523,807</td>
<td>403/1000 inh.</td>
<td>210,368</td>
</tr>
<tr>
<td>2012</td>
<td>530,722</td>
<td>403/1000 inh.</td>
<td>213,043</td>
</tr>
<tr>
<td>2013</td>
<td>535,810</td>
<td>403/1000 inh.</td>
<td>215,756</td>
</tr>
<tr>
<td>2014</td>
<td>541,304</td>
<td>403/1000 inh.</td>
<td>217,326</td>
</tr>
<tr>
<td>2015</td>
<td>548,800</td>
<td>403/1000 inh.</td>
<td>220,070</td>
</tr>
<tr>
<td>2016</td>
<td>553,036</td>
<td>403/1000 inh.</td>
<td>222,636</td>
</tr>
<tr>
<td>2017</td>
<td>557,098</td>
<td>403/1000 inh.</td>
<td>224,890</td>
</tr>
<tr>
<td>2018</td>
<td>560,041</td>
<td>403/1000 inh.</td>
<td>226,276</td>
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</tbody>
</table>

Inhabitants (557k)
Motorization (403/1000 inh.)
Number of private cars (226k)

GDP increase of 18.5% up to 63,783 € per employee
Mobility indicators - 02

costs for car users are stable, but costs for pt increase
Mobility indicators - 03
Private car is still a faster option than PT, because of lack of prioritization at traffic lights

<table>
<thead>
<tr>
<th>Year</th>
<th>Kfz</th>
<th>Straßenbahn</th>
<th>Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>27.6</td>
<td>19.0</td>
<td>20.8</td>
</tr>
<tr>
<td>2009</td>
<td>26.8</td>
<td>19.0</td>
<td>21.0</td>
</tr>
<tr>
<td>2010</td>
<td>23.8</td>
<td>19.0</td>
<td>20.8</td>
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<tr>
<td>2011</td>
<td>27.4</td>
<td>19.3</td>
<td>20.5</td>
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<td>2012</td>
<td>27.3</td>
<td>19.1</td>
<td>20.3</td>
</tr>
<tr>
<td>2013</td>
<td>26.5</td>
<td>19.0</td>
<td>20.6</td>
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<tr>
<td>2014</td>
<td>26.3</td>
<td>19.4</td>
<td>20.2</td>
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<td>25.2</td>
<td>19.3</td>
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<td>2016</td>
<td>24.8</td>
<td>19.1</td>
<td>20.1</td>
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<tr>
<td>2017</td>
<td>26.1</td>
<td>19.3</td>
<td>19.9</td>
</tr>
</tbody>
</table>

Average speed:
- Private cars (26,1 km/h)
- Bus (19.9 km/h)
- Tram (19.3 km/h)
Mobility indicators - 04
stagnation of car traffic but increase in inhabitants and PT

passengers local trains (95T, 152%)

passengers PT (568T)
commuters inbound (96k)
inhabitants (557k)
car traffic city access
daily volumes
general car traffic
daily volumes
Mobility indicators - 05
increase of cycling since 2013

Index: 2011 = 100%

- Ø number of bikes in 14 h across all river bridges (36T)
- Ø number of bikes at counting points per year (3.7 million)
- Inhabitants (557T)

<table>
<thead>
<tr>
<th>Year</th>
<th>Inhabitants</th>
<th>Bikes at counting points (per year)</th>
<th>Bikes in 14 hours at all river bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>2012</td>
<td>101%</td>
<td>104%</td>
<td>102%</td>
</tr>
<tr>
<td>2013</td>
<td>102%</td>
<td>97%</td>
<td>85%</td>
</tr>
<tr>
<td>2014</td>
<td>103%</td>
<td>118%</td>
<td>119%</td>
</tr>
<tr>
<td>2015</td>
<td>105%</td>
<td>122%</td>
<td>108%</td>
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<tr>
<td>2016</td>
<td>106%</td>
<td>111%</td>
<td>133%</td>
</tr>
<tr>
<td>2017</td>
<td>106%</td>
<td>110%</td>
<td>126%</td>
</tr>
<tr>
<td>2018</td>
<td>107%</td>
<td>128%</td>
<td>154%</td>
</tr>
</tbody>
</table>
The Dresden „Sustainable Urban Mobility Plan“
Traditions in planning and transition

- Long way from infrastructure planning after WW II to Sustainable Urban Mobility Plan (SUMP) in 2014/2018
Main objectives of the Dresden SUMP

- increase of life quality is main goal for city development
- main challenges:
  - growing city and increasing urban density but continuously less space for infrastructural needs
  - problems of air quality and traffic noise due to car traffic
- main approach of SUMP:
  - promoting space-efficient mobility (PT, bike, walking)
  - less private car usage and ownership but MaaS-options
  - use of local enthusiasm for changing mobility behaviour.

Download: http://www.dresden.de/media/pdf/stadtplanung/verkehr/VEP_2025plus_-_Ein_Ueberblick_EN.pdf
Political decisions demand more sustainable mobility and an increase of PT up to 30%
The four main elements of integrated mobility in the Dresden SUMP

- Integrated urban and mobility development
- Traffic management
- Transport infrastructure
- Integrated mobility management
The world of mobility becomes more and more confusing...

Public transport gets more individual

individual mobility gets more public
Recent tasks on integrated mobility planning in Dresden

- mobility hubs
- bikesharing
- carsharing
- micromobility
- open data
- e-charging
- automatization
- app-strategy
- PT on demand
- ridesharing
- pay-by-phone
- ...t.b.c.
Multimodal mobility already exists

Household-survey „SrV“ 2013 in Dresden
Change of transport mode for daily trips at least once per week

City of Dresden
Urban Planning Office
The integrated intermodal approach to **minimize** the needs of private cars and to **maximize** urban space and life quality in Dresden

- **Mobility as a service** as private public partnership for more sustainable urban mobility managed by local pt provider
  - bus/tram/train
  - public bikesharing
  - public carsharing
  - micro-mobility
  - on-demand-shuttle/Taxi

- **Green modes of individual mobility**
  - cycling
  - walking

- **electrification of the car fleet (priv./comm.)**
  - Decrease of combustion car fleet
Intermodality becomes reality – the inter-modal mobility hubs

Top

MOBIpunkt*

at important PT transfer point and stops/central

Base

Citywide „small scale“ intermodal options in neighbourhoods and industrial areas

*intermodal mobility hub
Cooperative brand „MOBI“ for all provider of energy, mobility, sharing and public transport in Dresden
Experiences with multimodality in Dresden

Fotos: Oliver Killig, Frank Fiedler
Dresden as European Light-house city in the EU Smart-City-Project „MATCHUP“
European Union SUMP-Award 2018 for Basel, Dresden, and Manchester

7th SUMP Award on multimodality
The transformation process of mobility and planning
Reality check: Private cars are still the common scale for speed and urban space.
Important transportation and mobility objectives of the future

1. urbanisation and higher density
2. less space for infrastructure
3. minimizing the effect of climate change
4. digitization and automatisation
5. increasing multimodal behaviour
6. permanent comparability of costs and mobility-options
7. higher demands on quality and services of public transport
8. increasing needs for active mobility
9. electrification of drive systems
10. diversification of the user groups, aging and multicultural population
Less car usage with Car-/Bikesharing is possible but is still a side topic.
Chances and risks of digitization and automatization for mobility

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**today**

- more sharing, less private cars
- healthy and green living
- even remote neighborhoods with decent PT
- traffic gets less noisy, safer, less energy-consuming and needs less public space
- all over better quality of life

**level of automatization/digitization**

The perfect world, that urban planners and mobility experts wish...

- more private but automatic cars, that park on their own and replace PT-usage
- urban space gets orientated on needs of automatic driving (fences...) ...
- Increase of usage of E-Scooters, Ridepooling or On-demand-shuttles – less active mobility
- rising traffic demand because of new options
- high rate of dependance on technique
- increasing costs on infrastructure and PT

**future**

The real world, that we might get...

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City of Dresden
Urban Planning Office

Grafik: Stadtplanungsamt
„I trust in horses. The private car is just a temporary appearance.“

Prussian emperor Wilhelm II. (1859-1941)

Mobility in Dresden 2050:
Which challenges will we meet?
Are our recent approaches in mobility planning still valid?
Which trends do we need to integrate in our strategies and which can we ignore?
Further questions of transformation and transition of mobility...

What is the benchmark for transformation?
What is the perfect “urban speed“?
What functions become prioritized in public space?
Who bears the costs or who profits?

Transformation of mobility = change of priorities + change of attitudes
Thank you for your attention!

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