

# In experiencing Basel. Presenting the Basel Transport Association (BVB)

Andreas Berk  
UTF Meeting Brussels,  
10<sup>th</sup> to 12<sup>th</sup> september 2019



## Andreas Berk

Civil engineer, focus on transport

Since 2014 at Basler Verkehrs-Betriebe, BVB (CH)

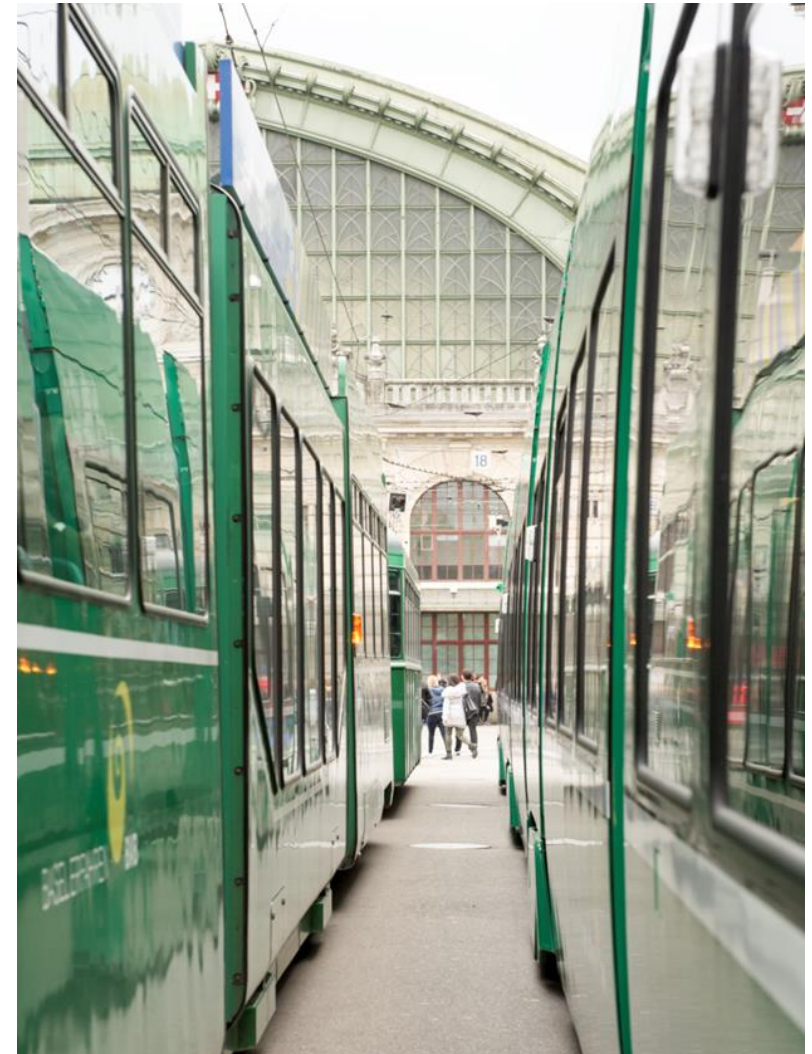
- Senior Projekt-Manager for Infrastructure, CH,D,F
- Deputy Operation-Manager (Betriebsleiter), D
- Operation-Manager (Responsable Sécurité), F
- Starting in 2020: New responsibility for the safety of the infrastructure and the rolling stock and for the risk-management

1999 to 2013 City of Heilbronn (D)

Projekt-Manager for the Heilbronn city-sections of the extension of the Karlsruhe tram-train system.

1996 to 1999 Saarbahn and City Saarbrücken (D)

Deputy Coordination Manager for the Saarbrücken tram-train line





# Basel ?



**Basel** is a city in Switzerland.

It's also one of the 26 cantons of which the Swiss Confederation consists.

Basel has borders with Germany and France



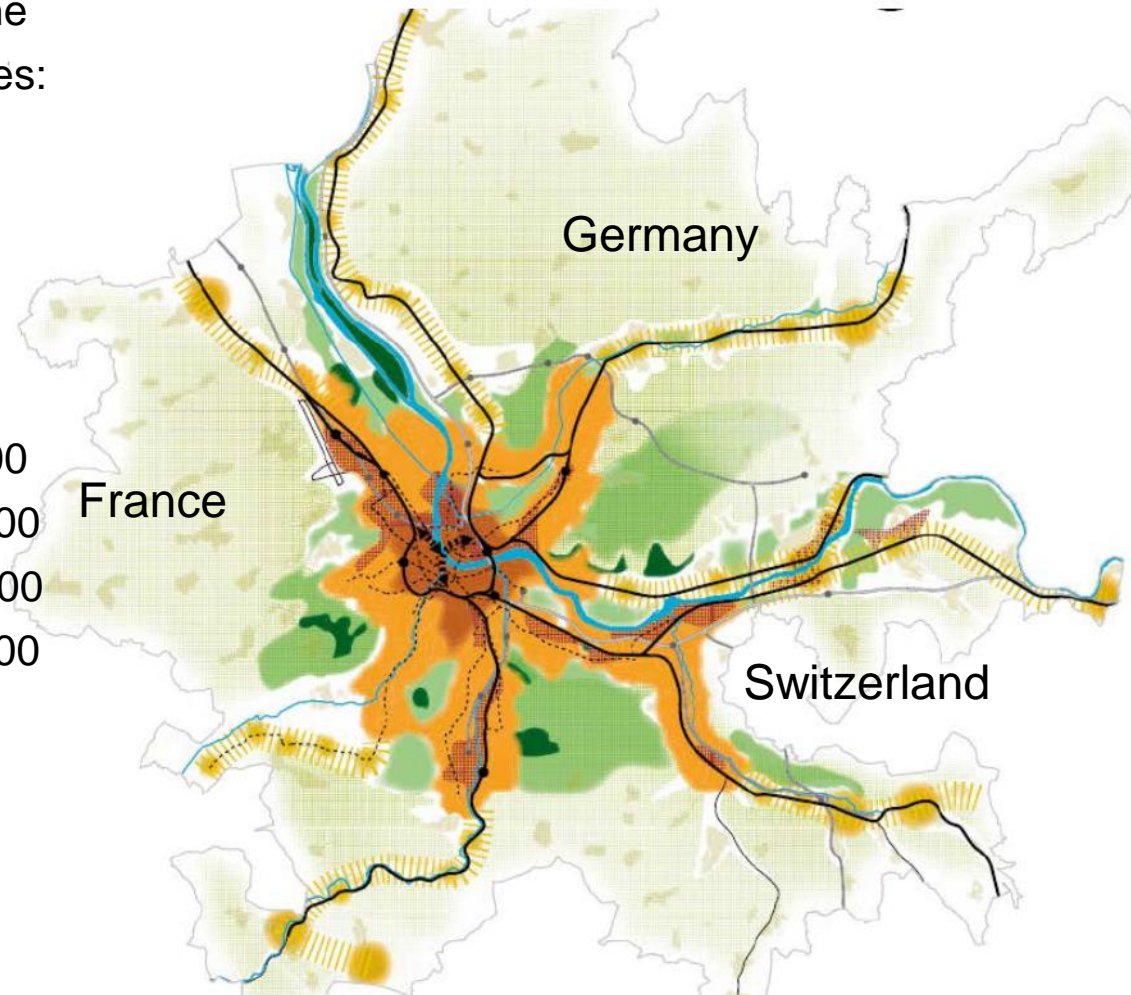
Photo: Basel Tourismus

# General Information about Basel Agglomeration

Basel is the center of Basel-Agglomeration which includes the neighbouring regions of 3 countries:  
Switzerland  
France and  
Germany

## Inhabitants:

Basel-Agglo: 800.000  
Basel-City: 200.000  
City of Saint-Louis (F) : 20.400  
City of Weil am Rhein (D) : 30.200



## AGGLO PROGRAMM BASEL



### Agglomerationsprogramm Basel Zukunftsbild 2030: Korridor+

Perimeter Agglomerationsprogramm

#### Landschaft

- Landschaftsräume
- Naherholungsgebiete im engeren Einzugsgebiet der Agglomeration
- Naturschutzgebiete

#### Siedlung

- Kernstadt
- Regionälzentrum (im äusseren Korridor)
- Innere Korridore
- Schwerpunkte Siedlung
- Äussere Korridore
- Übriges Siedlungsgebiet

#### Verkehr

- Vorgesehene Bahnverbindung
- S-Bahn
- Tramlinie
- Autobahn

0 km



## Public Transport within the agglomeration:

### Airport:

Bâle/Mulhouse/Fribourg

### Trains:

CFF : EC, IC, IR, S

SNCF: TGV et TER

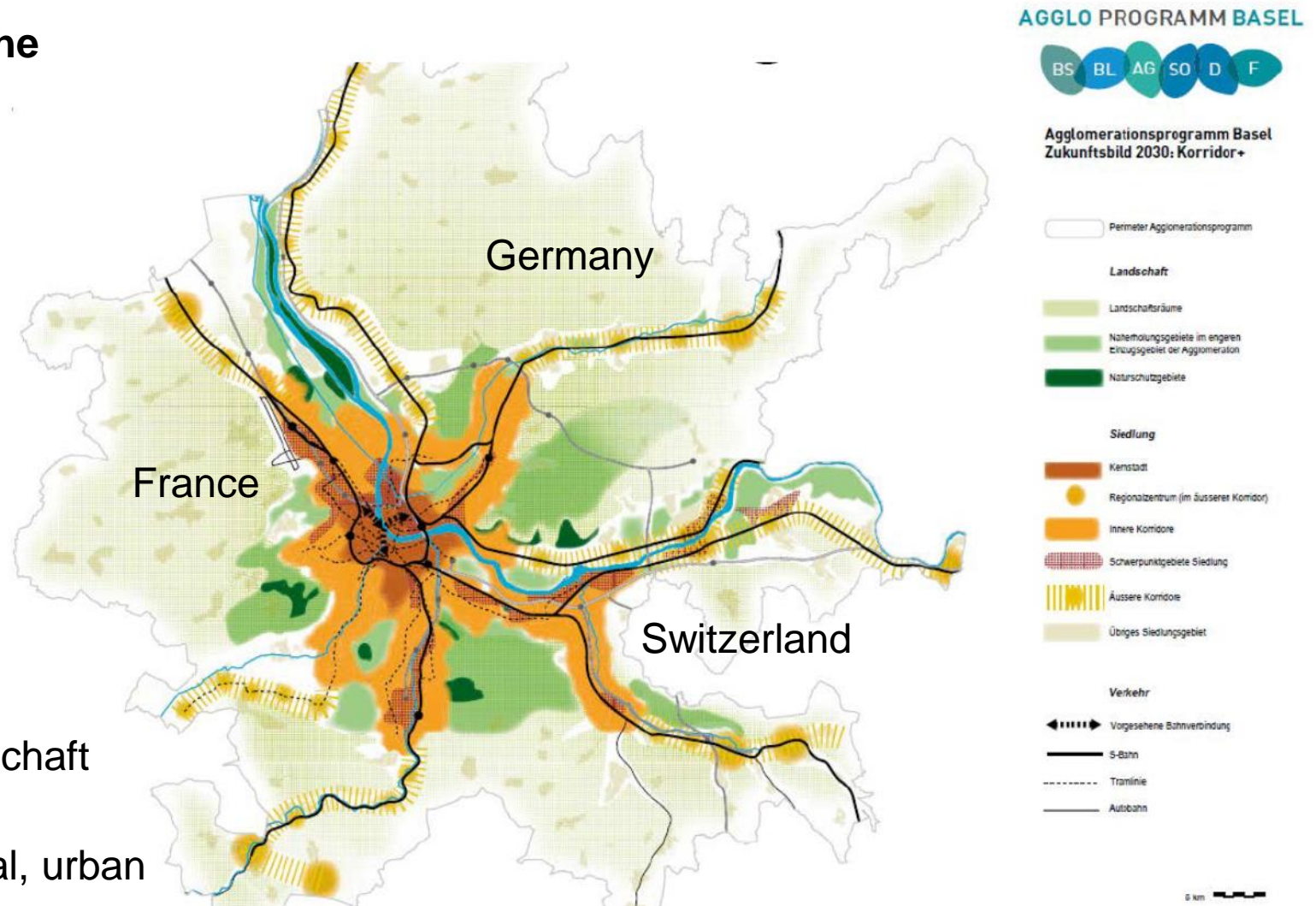
DB AG : ICE, EC, RB, S

### Trams:

BVB : Canton Basel-Stadt

BLT : Canton Basel-Landschaft

**Bus:** International, regional, urban



# The BVB today and tomorrow: Modern and sustainable





# History and Tradition: Basel's Tram Story

- Basel has relied on public transport for a long time: Trams have been running through the city since 1895 and buses since 1930
- The basic idea remains the same today: to promote the mobility of people in the city and connect Basel with its neighbours.
- For over 120 years, the BVB has been an indispensable part of the Basel city culture and has enjoyed a high level of acceptance among the population.
- The BVB dominates the cityscape with its vehicles, employees and stops.



# Tri-Border Region

## Borderless public transport

- Basel as a hub for trade and commerce
- The BVB connects Switzerland with its neighbouring countries:
  - Bus no. 38 to Grenzach-Wyhlen (Germany) in south Baden
  - Tram no. 8 to Weil am Rhein (Germany, since 12/ 2014)
  - Tram no. 3 to Saint-Louis (France, since 12/ 2017).





# Facts & Figures: Key figures at a glance





**Canton of Basel-Stadt:**



The Canton of Basel-Stadt: is 100 percent owner of the BVB.



Bau- und Verkehrsdepartement des Kantons Basel-Stadt

**Mobilität**



The office for mobility in the Construction and Transport Department has placed the order for all services.



BASEL ERFAHREN

**BVB**

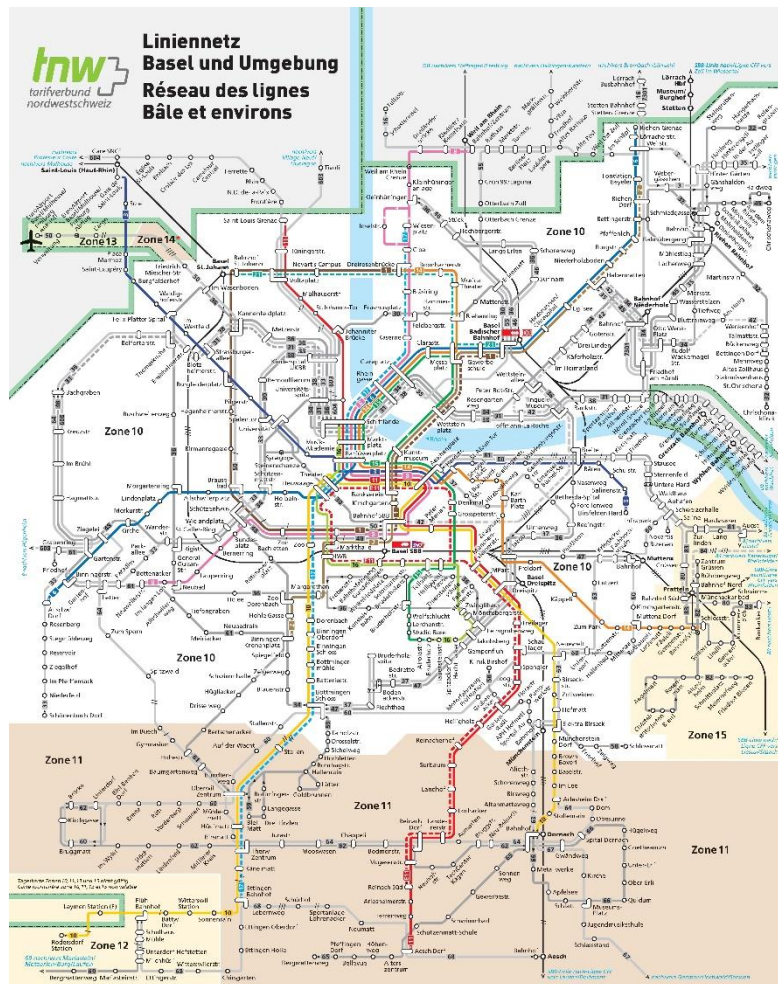


The BVB provides the service ordered in the agreed quality.



# High transport volume: Compact network and passenger-oriented service






Compact network interval between services



Compact timetable with 7.5-minute intervals





|           |    |    |    |    |    |    |    |
|-----------|----|----|----|----|----|----|----|
| <b>5</b>  | 08 | 23 | 38 | 53 |    |    |    |
| <b>6</b>  | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>7</b>  | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>8</b>  | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>9</b>  | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>10</b> | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>11</b> | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>12</b> | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>13</b> | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>14</b> | 01 | 08 | 16 | 23 | 31 | 38 | 46 |
| <b>15</b> | 01 | 08 | 16 | 23 | 30 | 38 | 45 |

# Key figures from the 2017 financial year

|  | 2018   | 2017   |
|--|--------|--------|
|  <p><b>Transport service</b><br/>(in millions of passenger kilometres/year)</p>                           | 292.55 | 296.24 |
|  <p><b>Passengers transported</b><br/>(in millions of persons getting on/year)</p>                         | 127.74 | 130.66 |
|  <p><b>Company success</b><br/>(in millions of Swiss francs/year)</p>                                     | - 0.77 | 0.27   |
|  <p><b>Punctuality</b><br/>(achievement level within the defined tolerance values, in % of journeys)</p> | 82.4   | 89.4   |
|  <p><b>Employees</b><br/>(people)</p>  | 1'243  | 1'255  |



# Key figures from the 2017 financial year

|   | Tram   | Bus     |
|---|--------|---------|
|  <b>Line lengths</b><br>(in meters)   | 72'755 | 111'663 |
|  <b>Course kilometres</b><br>(in thousands)   | 6'375  | 6'365   |
|  <b>Rolling stock</b><br>(vehicles, incl. tram trailer cars, excl. vintage vehicles) | 140    | 114     |
|  <b>Number of lines</b>   | 9      | 14      |

**More than 1,200 dedicated employees are deployed on 365 days virtually around the clock for BVB passengers:**

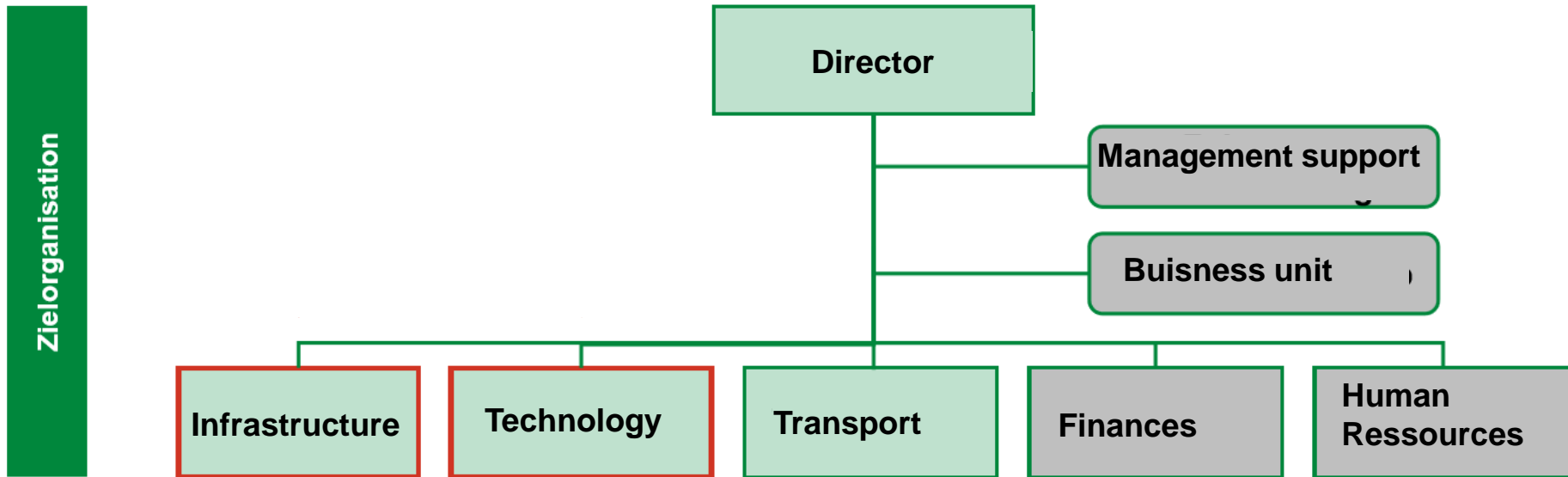
- Driver Scheduling and network service
- Service/maintenance centres and bus garage
- Customer centre and communication
- Rail infrastructure and electrical systems
- Cross-section tasks (such as finance and human resources)





# How we are organised: The organisation of the BVB





The Transportation division comprises all important core services associated with BVB passengers. Strategic tender planning, operational planning and control, and vehicle operation are all coming from a single source.

We ensure the high reliability of our service, among other things, with complex deployment scheduling and continuous training of the train and bus crew.

The focal topics are:

- Requirements Management & Operational Systems
- Training and Regulations
- Network Development and Tender Planning
- Production Planning and Management
- Bus Production
- Tram Production
- Operations Managers Germany and France





The Infrastructure department ensures that the fixed installations (tracks, overhead wires and stops) are at a high safety level and in a defined quality as economically as possible.

In addition to these operational activities, employees are involved in many strategic projects, such as the implementation of the Disability Discrimination Act (known as BehiG) or the ongoing development of the wheel/rail system.

The focal topics are:

- Maintenance management
- Projects & Standards
- Production (electrical work, rail construction, track work, services, materials planning and control)
- Safety and Risk-Management of infrastructure and rolling stock (starts in 2020)



The Technology department procures service vehicles, peripheral systems (e.g., radio-communication), own facilities (e.g., washing facilities) and vending machines and is also responsible for their maintenance.

The employees ensure the high reliability and availability of all systems and vehicles. Economy and efficiency are continuously optimised with process improvements.

The focal topics are:

- Planning and fundamentals
- Bus maintenance
- Rail vehicles maintenance
- Development and projects
- Maintenance of systems and peripheral systems
- Safety and quality standards



The Business unit Division is strengthening the core business of BVB (Basel Transport Companies) by providing efficient services in relation to communication, integrated management systems, legal security, strategy and innovation.

This staff organisation is also represented within senior management by its leader, acting in an advisory capacity.

The focal topics are:

- Corporate communications
- Technical support
- Corporate development (strategy, innovation, business models, and strategic partnerships)
- Safety, Risk-Management, Environment, Quality





# Fit for the future: The basic conditions are just right



# Successful concept of the North-western Switzerland Tariff Association (TNW)

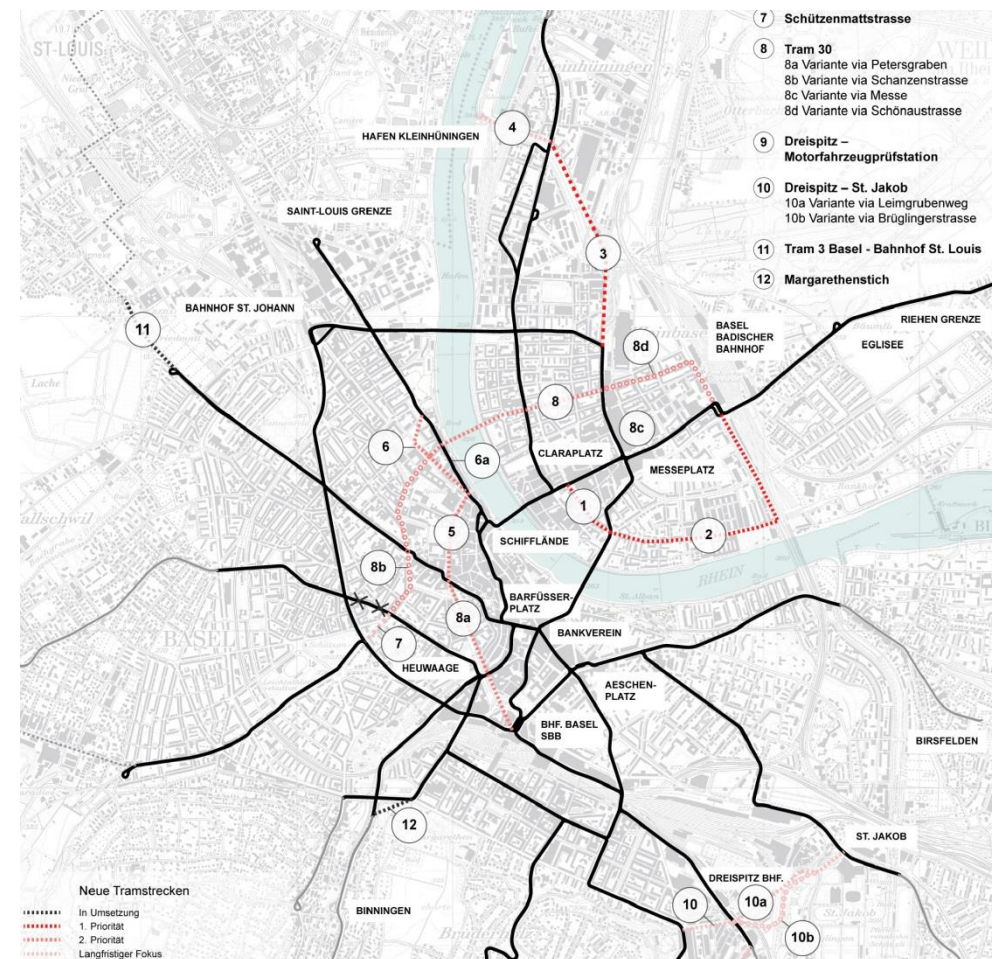
- The TNW is the oldest tariff association in Switzerland (since 1987)
- Core product is the U-Abo; 75 percent of all passengers benefit from it.
- The TNW is organised as an association. In addition to the cantons BS, BL, AG, SO and JU, the following companies are members: BVB, BLT, SBB, AAGL and Postbus
- With a revenue share of almost half, the BVB is the largest partner in TNW, followed by BLT and SBB, each with approx. 20 percent





## More trams for the Basel region

- Objective: an attractive, powerful and economical tram network in the Basel region
- The expansion helps to develop future job centres and new residential areas compatible with urban requirements and in an environmentally friendly way
- To offer an attractive alternative to the car for commuters
- Expansion to the nearby border area
  - Tram no. 8 to Weil am Rhein:  
in operation since the end of 2014
  - Tram no. 3 to Saint-Louis:  
in operation since the end of 2017





# The BVB is modernizing



- From May 2018, a total of 61 *FLEXITY* trams travel on the BVB network, including 44 long 43 meter trams and 17 32 meter short trams.

## The advantages of *FLEXITY* Basel

- Tried and tested, customer-friendly tram
- Environmentally friendly and 100 percent low-floor
- In use worldwide, internationally approved
- Optimum price/performance ratio

## Three tram generations are in use:

- **61 *FLEXITY* trams and 28 Combinos;**  
100 percent low-floor, 100 percent air-conditioned and with a new passenger information system (incl. infotainment)
- **26 “Cornichons” (Be 4/4),**  
with **25 trailers with low-floor centre portion (B4S)**



Bus procurement is taking place in stages

- 55 new articulated buses (Euro Diesel VI standard): Delivery took place in 2015
- Procurement of minibuses: Delivery took place in 2019

## Programm "Bussystem 2027"

- The marketability of alternative drive technologies was tested in collaboration with other cities.
- Basis for the replacement of the gas bus fleet by approx. 2024
- According to ÖV-Gesetz (Öffentlicher Verkehr Gesetz [the Public Transport Act]), a modern, ecological bus fleet will be exclusively under way with renewable energy sources starting from 2027
- **55 diesel-driven articulated buses (Euro VI standard) and 38 Citaro gas buses;**  
100 percent low-floor, air-conditioned and 100 percent with a new passenger information system
- **5 minibuses**





To meet the swiss and European objectives for easy access to the transport-system for people with impaired mobility, the canton and BVB launched a program of redesigning the tramway and bus stops to provide convenient boarding and alighting of the vehicles till 2023. Also the means of communication and distribution of tickets are going to be adjusted.

## The objectives

- Platform-level at 27 cm above rail surface
- Straight alignment on the whole length of a vehicle (-> 45 m); special designs are possible due to the lack of space, on remaining curves and for combined tram and bus stops (for more information: BVB design manual)

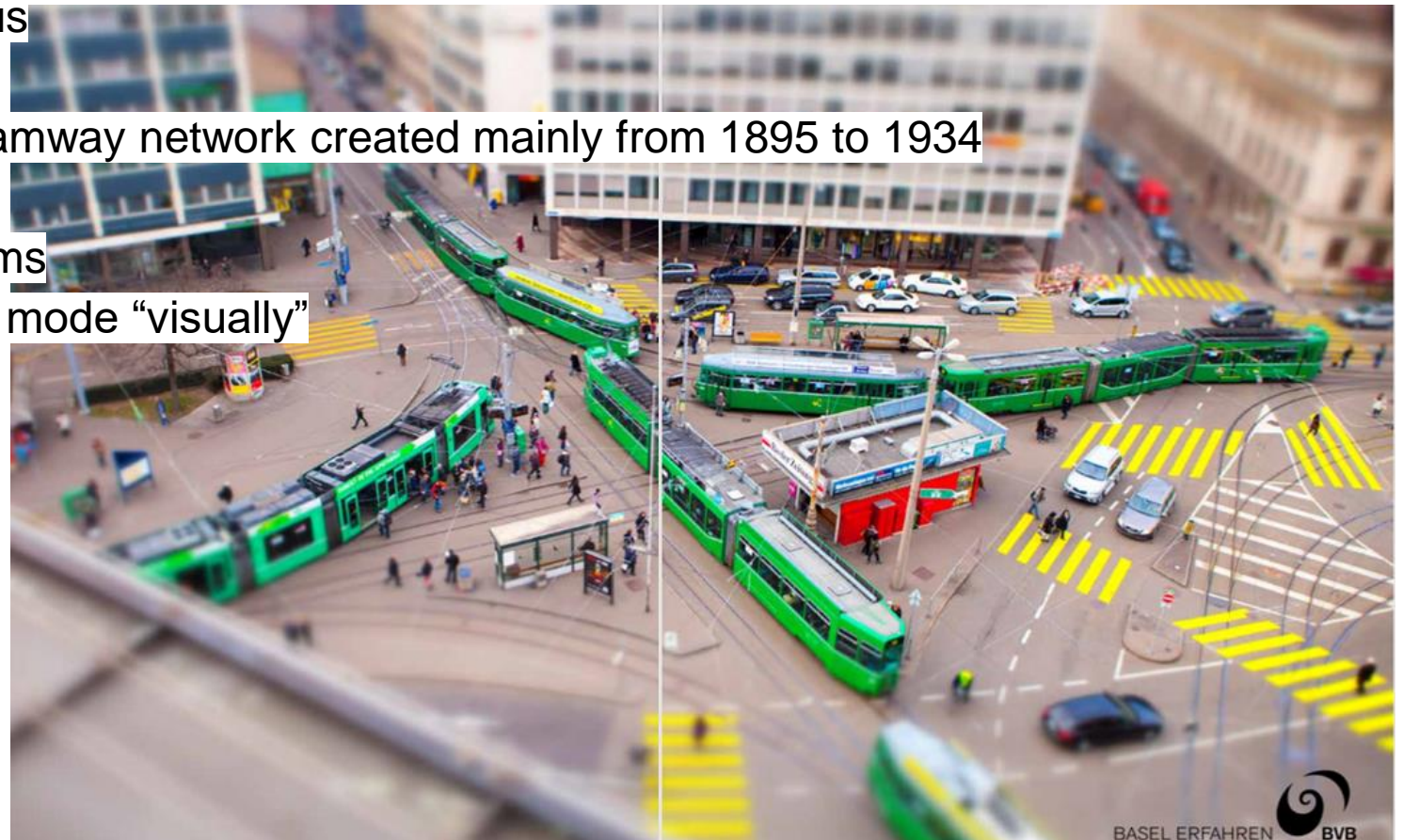
Example for a redesigned stop:  
“Rheingasse” , situated in the car-free inner-city area



## Some facts to the (historic) network («where BVB comes from»)

- The old route layouts for two-axle vehicles can hardly be changed in the city-center:
  - > Curves of 12 m radius
  - > Stops in curves
  - > Route layout for a tramway network created mainly from 1895 to 1934
  - > Narrow streets
  - > Mono-directional trams
  - > Operating in manual mode “visually”

Example for an “historic” tramway interchange-stop Aeschenplatz in 2012 (served by 7 lines)





## Track formation

- Eigentrassée getrennt von Strasse (41 Gleiskm)
- Eigentrassée abmarkiert (10.2 Gleiskm)
- Kernzone Verkehrskonzept Innenstadt
- Gesamtgleiskm BVB: 127.29

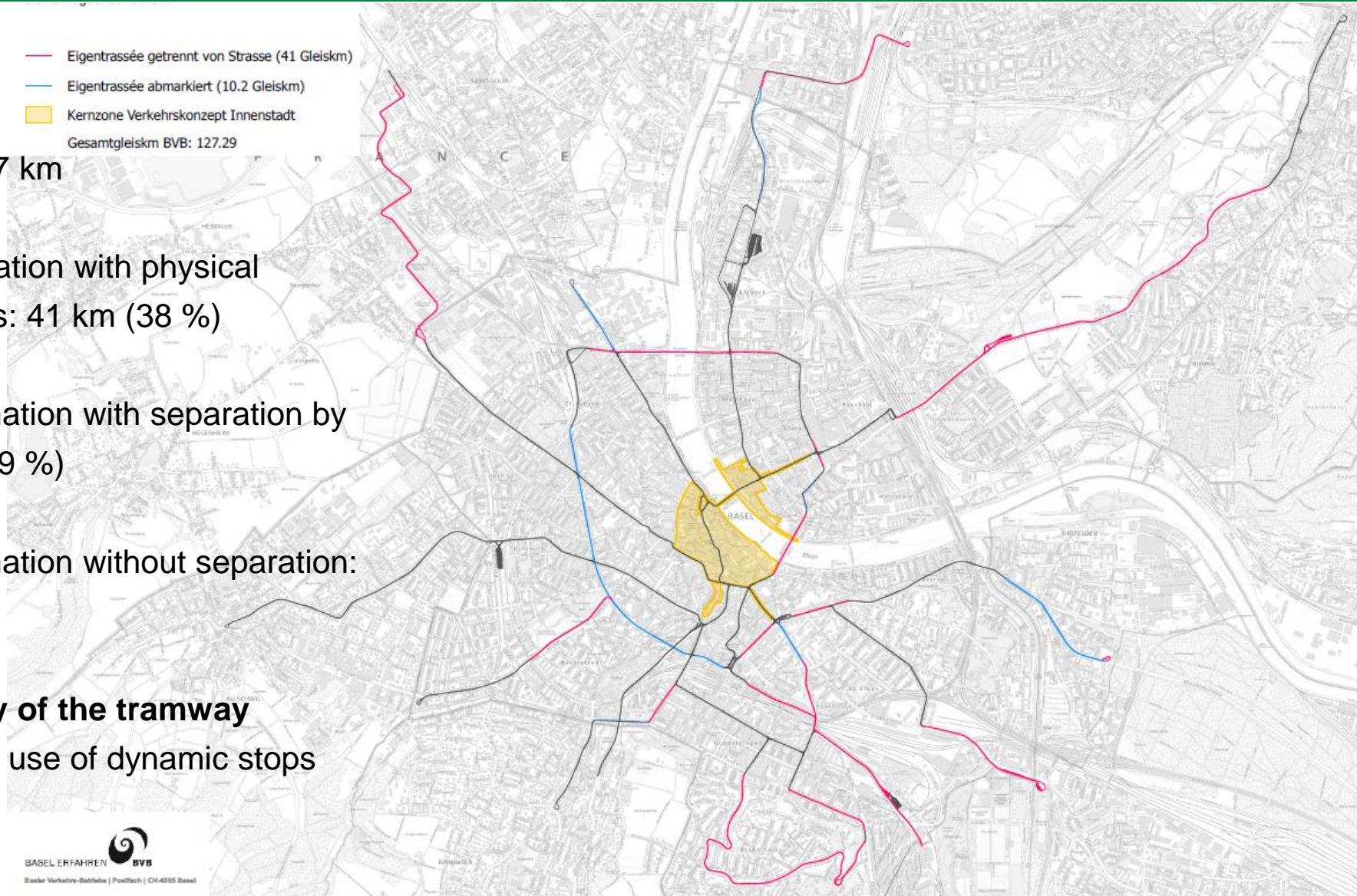
Total track length: 107 km

Separate tracks formation with physical separation from roads: 41 km (38 %)

Embedded track formation with separation by demarcation: 10 km (9 %)

Embedded track formation without separation: 56 km (53 %)

**But: General priority of the tramway** at traffic lights, by the use of dynamic stops and cape stops

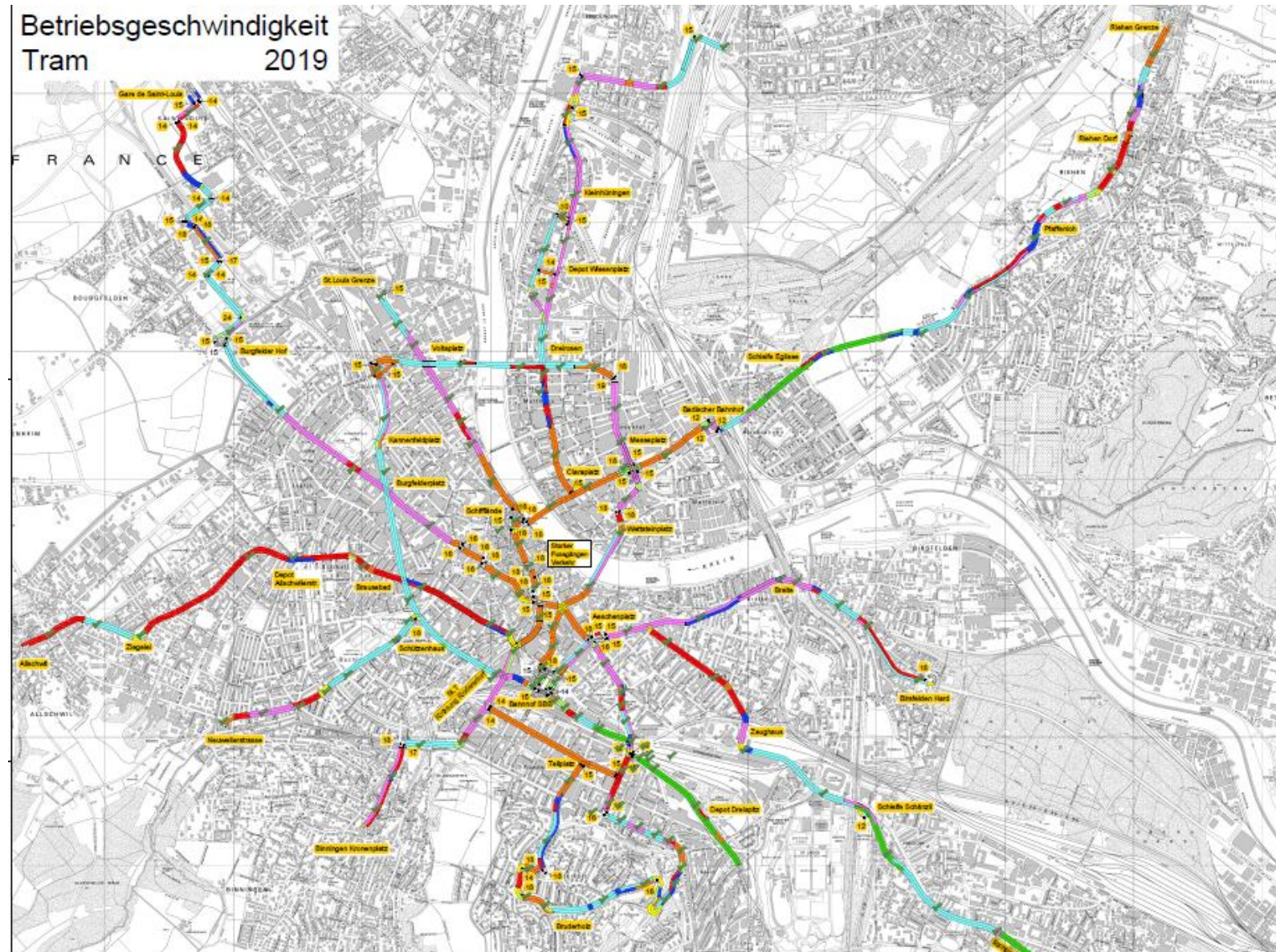
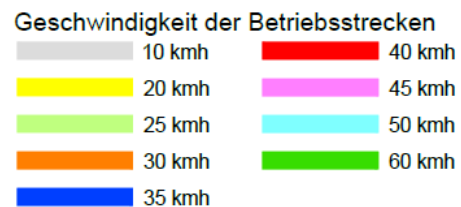




# History and Tradition: Basel tramway network characteristics

## Speedlimits for Operation

The average  
commercial speed is  
about 14 to 15 km/h



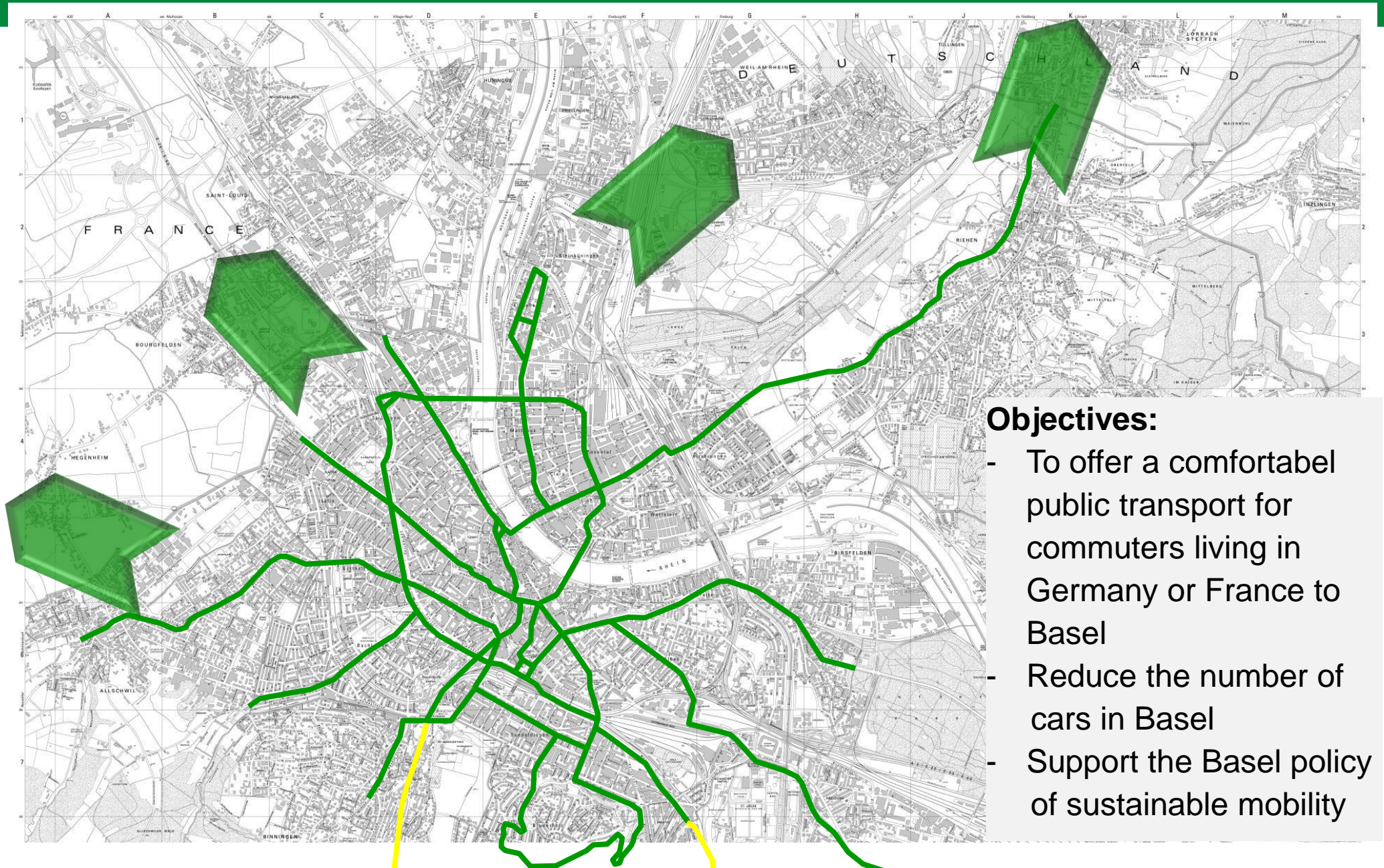


# BVB crossing borders The extensions towards Germany and France





# Strategic extension of the network to the north and west

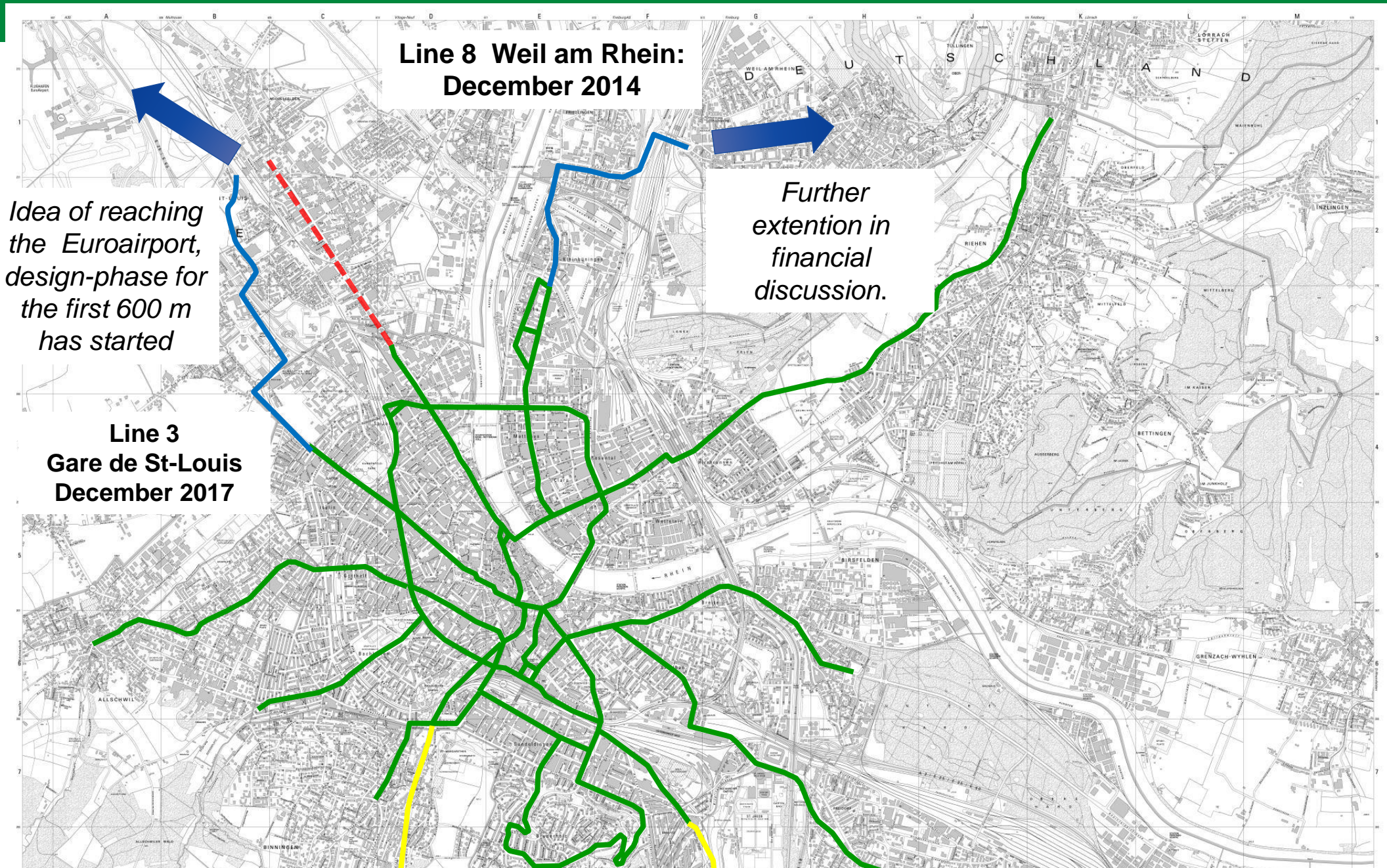


## Objectives:

- To offer a comfortable public transport for commuters living in Germany or France to Basel
- Reduce the number of cars in Basel
- Support the Basel policy of sustainable mobility



# Realised in 2019: 2 tramway-lines crossing borders





# Tramway-lines crossing borders

## Different supervisory structures

**Line 3**  
**Gare de St-Louis**  
**France, EU**  
**-> STRMTG**

**Line 8 Weil am Rhein:**  
**Germany, EU**  
**-> Technical Supervisory Agency**  
**TAB**

**Line 8 and 3 have also new sections in**  
**Switzerland**  
**-> Federal Office for Transportation**  
**BAV**

Planning and construction of the infrastructure, the licences for tramway vehicles and tramway operation have to match the requirements of three different countries, their regulations and their supervisory bodies.

- Vehicles: Combino and Flexity are licensed by the BAV for operation in the swiss parts of the BVB network.  
TAB referred to the BAV licenses, some adjustments had to be made  
STRMTG asked to follow the french procedures, -> only he Flexity is licensed



# Tramway-lines crossing borders Interfaces





# Tramway-lines crossing borders

## Interfaces

### Ensure safe and smooth running operation and maintenance

- BVB is tramway operator in the three countries.
  - The infrastructure in Germany and France is owned by the local communities:  
Weil am Rhein and Sant-Louis Agglomération
  - BVB is in charge of the maintenance of the infrastructure
  - 
  - The BVB Design-Manual is the basis for planning and construction also in Germany and France; national guidelines have to be respected.
- > result: different appearance of the track in each country (separated tracks, traffic-lights)

# Tramway-lines crossing borders

## Interfaces





# Tramway-lines crossing borders

## Interfaces

### Ensure safe and smooth running operation and maintenance

- The three countries have different regulations concerning the acceptance of working-skills  
-> BVB electricians obtained a French certificate of professional competence; in Germany they are only allowed to work under the supervision of a German electrician.
- The BVB Provisions für Tramway Operations are accepted by all three supervisory bodies and are enriched by an addition for the German and the French sections to match the national regulations
- Switzerland belongs to the Schengen-Agreement, so the tramways can pass the borders without controles (exeption: german border-controls for illegal immigrants)
- Customs regulations have to be respected mainly for the maintance works (tools, material, waste)
- Language: Knowledge of the French language is requiered on different levels for tramway-drivers, managers of the operation center and emercency-staff

# Tramway-lines crossing borders

## Interfaces

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- Switzerland belongs to the Schengen-Agreement, so the tramways can pass the borders without controles (exeption: occasional German border-controls with the purpose on illegal immigrants)
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- Language: Knowledge of the French language is requiered on different levels for tramway-drivers, managers of the operation center and emercency-staff

**Conclusion: It was -and still is- a hard work, but it's worth it**



Thank you very much  
for your interest