Task Force on the Exchange of Traffic Management Plans (eTMP) – TF (liaison) on DATEX2 and TISA cooperation.

Use cases to be examined in cooperation with DATEX2 and TISA

Goals

➢ Alignment of information between traffic management plans and RTTI services / navigation systems

➢ Expand set of measures as part of a strategic traffic management

➢ The work on communication protocols such as DATEX2 and TISA is outside the scope of the TM 2.0 Platform. Nonetheless, the SB has decided to give approval for a small Task Force to be created as a liaison between TM 2.0 and DATEX2 and between TM 2.0 and TISA. The co-chair of TM 2.0, PTV and Technolution have volunteered to participate in this liaison TF.

Use case categories

In the following only use cases which are part of an active road management are considered. We identified the following categories:

➢ temporary closures / openings of road infrastructure

➢ detour recommendations (e.g. in case of incidents, events)

➢ (demand) responsive control (improve capacity/performance of road infrastructure)

➢ dose measures

➢ city-friendly navigation

For each category we will describe a use case which is relevant to the work undertaken by the eTMPs Task Force (liaison).

Temporary closures / openings of road infrastructure

Short description:

Temporary opening or closure of road infrastructure (e.g. tunnels, bridges, bypasses) is a mean of traffic management to either restrict or improve access to certain areas of the road network. In some cases, temporary road closures are also necessary to ensure safe traffic in areas where different mode of transport share the same space (e.g. railroad crossings, waterway crossings).

Objective and benefits:

Road operators like to communicate either

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> ➢ a temporary closure of road infrastructure (including location, duration of closure (either by defining start time and end time or providing delay); this information can either be used to (a) inform the driver about the reason of a delay/congestion or (b) support the decision process to opt for a local rerouting.

> ➢ a temporary opening of road infrastructure (including location, duration (defining start time and end time); this information can be used for alternative route calculations.
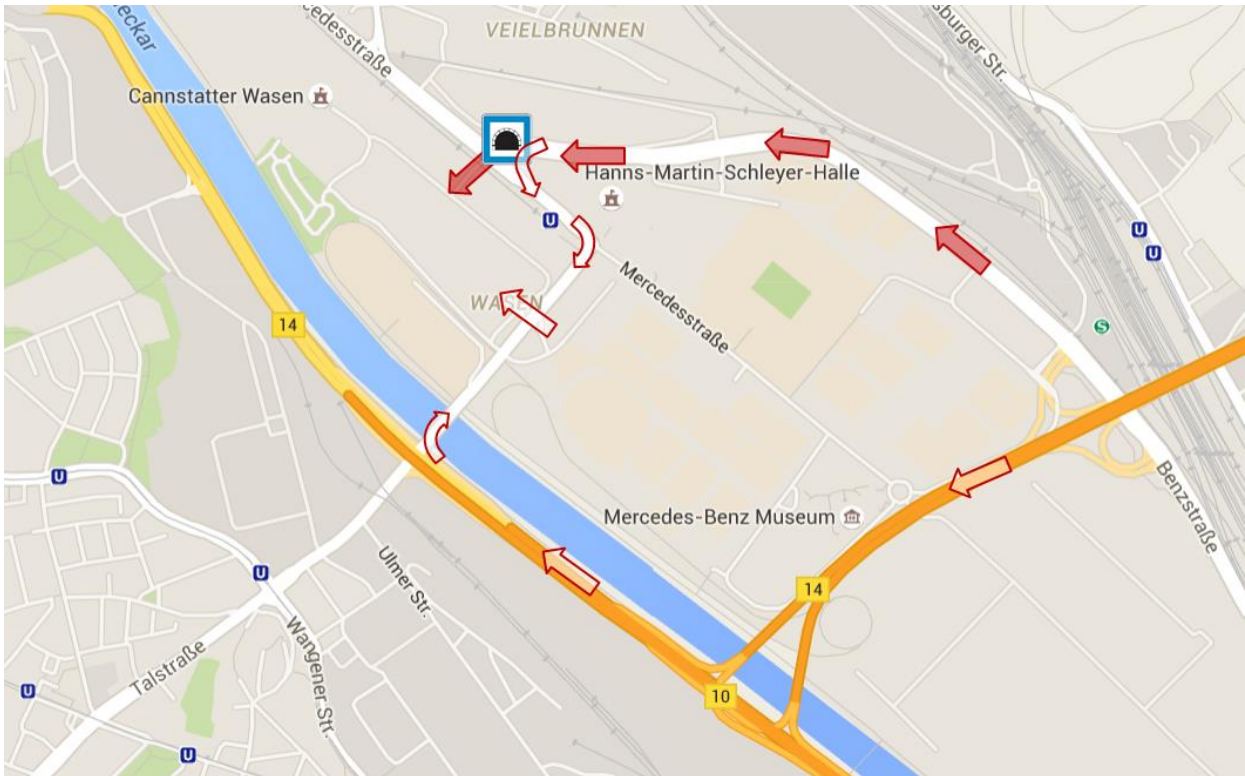
Figure 1: temporary opening of road infrastructure (tunnel). In plain red: new route alternative, in contour red: typical route.

Users:

> ➢ Road operator as information source.
> ➢ Service provider as application provider.
> ➢ Driver as end user.

Impacts:

Road operators, service providers and drivers can benefit from that information.

Road operators provide beneficial information which lead to safe and efficient driving / routing decisions.

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Service provider can use this accurate information to decide if a detour is beneficial for the drivers or not and thus improve their service.

Drivers not only receive detailed information about the reason of a delay or congestion, but can also receive recommendations for local detours → improve driving experience.

Detour recommendations

Short description:

One aspect of active traffic management (ATM) in case of heavy traffic / congestions is to shift traffic demand from one part of the road network to another part of the road network. In case of congestions / heavy traffic ATM provides detour recommendations using roadside infrastructure as variable message signs. In some cases, this detour recommendation is vehicle type specific.

Objective and benefits:

Road operators like to communicate

➢ the location of a congested part of the road network together with a recommended detour, information about the cause of delay and the information, that this is part of an active traffic control strategy; this information can be used for alternative route calculations.

Figure 2: congested main road with cause incident and recommended detour.

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Users:

> ➢ Road operator as information source.

> ➢ Service provider as application provider.

> ➢ Driver as end user.

Impacts:

Road operators, service providers and drivers can benefit from that information.

Road operators provide beneficial information which support efficient road traffic demand distribution which lead to safe and efficient driving / routing decisions.

Service provider can use this detour recommendation to decide if a detour is beneficial for the drivers or not and thus improve not only their service, but also actively support traffic management.

Drivers not only receive detailed information about the reason of a delay or congestion, but can also receive recommendations for detours provided by traffic management which leads them to parts of the road network with remaining capacities.

(Demand) Responsive control

Short description:

One aspect of active traffic management (ATM) in case of heavy traffic is to increase road capacity with the help of control measures as the opening of additional lanes, the change of traffic signal timing or the adaptation of speed limits and thus improving travel times at the affected parts of the road network. In all cases the driver is informed about the changes via roadside infrastructure.

Objective and benefits:

Road operators like to communicate

> ➢ a temporary increase of road infrastructure (including location, duration / start time and end time); this information can be used for alternative route calculations.

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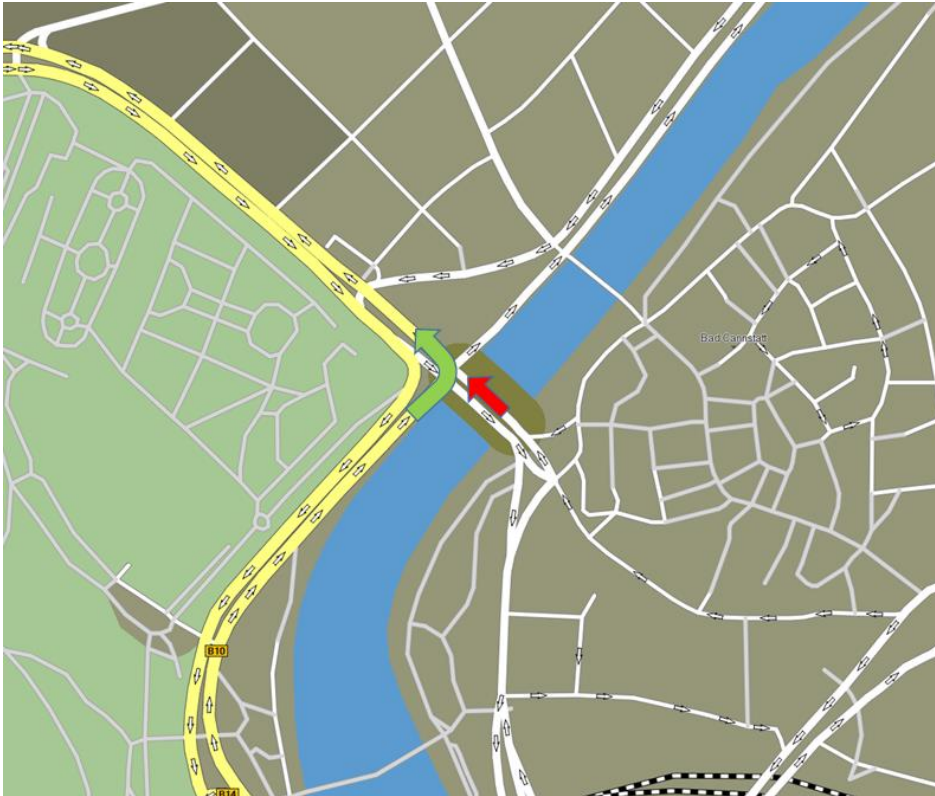
Figure 3: additional green time for main road to increase capacity (improve traveltimes).

Users:

- ➢ Road operator as information source.
- ➢ Service provider as application provider.
- ➢ Driver as end user.

Impacts:

Road operators, service providers and drivers can benefit from that information.

Road operators provide beneficial information which support routing decisions and can expect, that more cars are using parts of the road network with increased capacity.

Service provider can use this additional information to decide if a detour is beneficial for the drivers or not and thus improve not only their service, but also actively support traffic management.

Drivers receive better route recommendations using the increased traffic capacity of the road network.

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Dose measures

Short description:

One aspect of active traffic management (ATM) in case of heavy traffic is to regulate access to specific parts of the road network with limited road capacity.

Objective and benefits:

Road operators like to communicate

> ➢ a temporary access regulation to specific parts of a road network (including location, duration / start time and end time, delay); this information can be used for alternative route calculations.
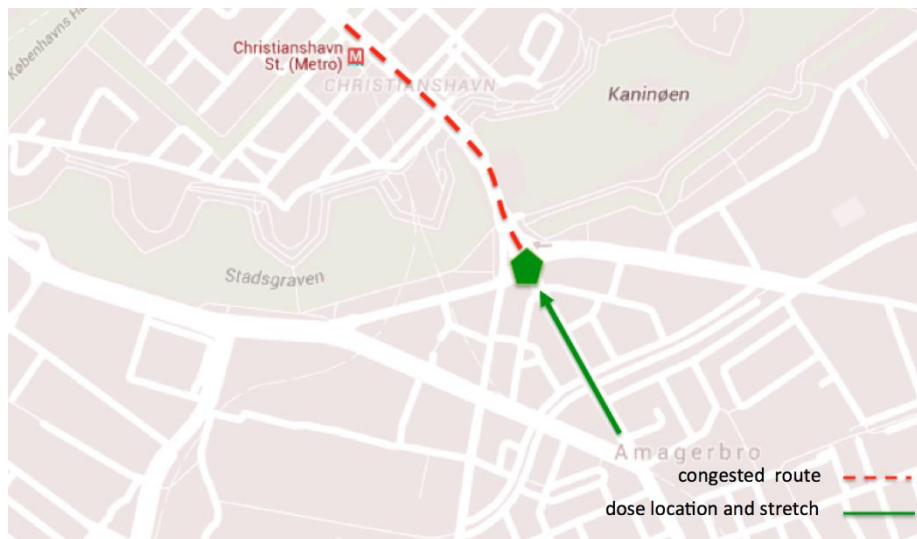

Figure 4: active access control (with traffic lights) to regulate access to area with limited road capacity.

Users:

> ➢ Road operator as information source.
> ➢ Service provider as application provider.
> ➢ Driver as end user.

Impacts:

Road operators, service providers and drivers can benefit from that information.

Road operators provide beneficial information which support routing decisions and can expect, that cars can avoid parts of the road network with low capacity.

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Service provider can use this additional information to decide if a detour is beneficial for the drivers or not and thus improve not only their service, but also actively support traffic management.

Drivers receive better route recommendations avoiding areas of the road network with limited capacity.

City-friendly navigation

Short description:

In some cases, road operators like driver / navigation service provider to (temporarily) avoid specific parts of the road network (e.g. residential areas, school zones) for safety or environmental reasons.

Objective and benefits:

Road operators like to communicate

➢ a temporary advice to avoid specific parts of the road network; this information (location, duration, reason, ..) can be used for alternative route calculations.
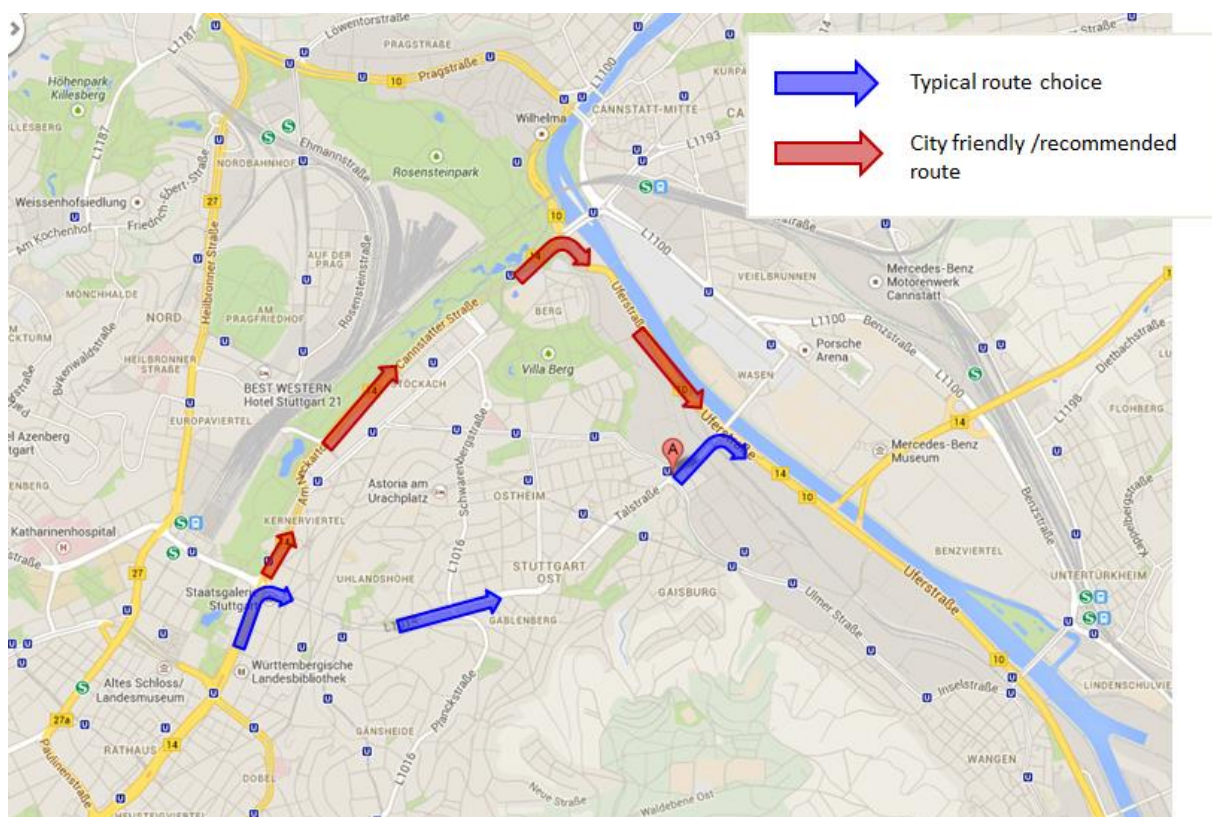

Figure 5: city friendly navigation avoiding residential area.

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Users:

- ➢ Road operator as information source.
- ➢ Service provider as application provider.
- ➢ Driver as end user.

Impacts:

Road operators, service providers and drivers can benefit from that information.

Road operators provide advisory information which recommends alternative route choices resulting in the avoidance of specific parts of the road network.

Service provider can use this additional information to actively support the policy goal of a road operator.

Drivers receive route recommendations and become part of a city friendly traffic.

Scope:

DATEX2→ Does DATEX2 support the communication on the above-described Use Cases?

TISA→ Does TPEG support the communication on the above-described Use Cases?

Members of the eTMPs (liaison) TF:

-Matthias Mann (PTV)

-Jop Spoelstra (Technolution)

-Johanna Tzanidaki (TomTom)

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