



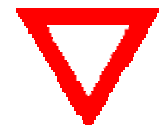
User Requirements for a EuroRoadS dataset

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WP5 Outline Plan

2004	Principal Activities in WP5
March	Project Initiation
April	Scoping
May	Researching
June	Phase I Questionnaire
July	Delivery of Draft Report D5.1
August	Planning
September	Phase II Questionnaire
October	Research, Analysis & follow ups
November	Reporting
December	Delivery of Final Report D5.2





Aims

- Draft Report D5.1 [and this presentation] does not set out to be definitive
- function as a *Straw Man*
- to invite debate to inform the final report





Principal Assumptions

- Cross border use of the data.
- Business to business user [B2B]

Work does not duplicate the case for requirements for applications proven in the marketplace and within individual countries.





A challenge.....

- Are the user requirements different to those of the user within a country who does not cross its borders?

- Would the user want divergence between inter and intra country products?





Principal Markets

- Intelligent transport systems
- Mobility management
- Traffic management
- Road maintenance
- Traffic safety
- Macro transport planning
- Environmental and society planning.

Uses will be many and varied.





Summary of Market Drivers

	Driver	Needs / Impact/ Effect
1	Mobility management	Requires interoperable datasets. Long term public sector impact.
2	Reduction of casualty rates on European roads/transport	Identification of location features, network hotspots, and so on. Identification of traffic volume/change.
3	Commercial vehicle Original Equipment Manufacturer [OEM] profitability	Accurate and current network and network information. Increasingly detailed road/traffic information including real time information.
4	Reduction of Urban and Rural social exclusion and deprivation through Social planning	Requires interoperable datasets. Long term public sector impact. Possibly converging networks, for example, cross border, also improvement criteria, asset management for capacity planning.
5	Telematics	Increasingly requires detailed and current network and surface and point data. Impacts on most core applications in respect of enabling and improving transport based services across b2b and consumer markets. Future attribution to enable voice recognition services.
6	Improving Traffic management effectiveness and efficiency (Public sector and Commercial service user base)	Requires position of M-way information furniture, electronic and other surface type and condition, location of traffic, enforcement tools, other management furniture, for example, for congestion levels, accident/event management, network, attribution of.ID of secure parking.
7	Military and security planning	Up-to-date road network, multi-modal links, weight/width restrictions
8	EC high level planning	Requires GI data including road networks to enable decision making and effective planning





Market analysis - sources

- Consortium members' own digital road datasets and their market knowledge.
- Organisations [actors] active in digital road data and applications who agreed to respond to a questionnaire.
- Interrogation of third-party reports.
- Web sites of numerous organisations in transport, planning, government and applications development.



Applications

1. Asset Management
2. Road Charging ((including Tolling)
3. Navigation and Routing
4. Fleet Management
5. Safety (including ADAS)
6. Mobility and Society Planning
7. Traffic Management



Key User Groups

Level 1	Public sector	Commercial (B2B)	Commercial (B2C)
Level 2	European Commission	Information network providers	OUT OF SCOPE
	National government	Information service/content providers	
	Local/regional government/ (includes road management)	Vehicle OEM's	
	Emergency Services	Logistics	
	National mapping associations	Mapping/GI providers	
NOTE: User groups could be further segmented, for example, to a Level 3			





Asset management (including Public Sector Roads Administration)

– cross border & B2B

Essential	<ul style="list-style-type: none">•Road Network•Road Classifications and Types•Geometry•Road Names and numbers•Unique Identifier
Additional	<ul style="list-style-type: none">•Road Lengths•Administrative Boundaries•Traffic Regulations, for example speed limits•Road Surface Information•Tolling•Number of lanes•Network lines in both directions (dual carriageway)
Future requirements	<ul style="list-style-type: none">•Higher levels of accuracy for most content sets•Precise modelling of road junctions•Improved currency





Road Charging (including Tolling)

– cross border & B2B

Essential	<ul style="list-style-type: none">•Road Network•Geometry•Road Classification and Road Type and/or polygons as charging areas (depends on implementation)
Additional	<ul style="list-style-type: none">•Speed Limits
Future requirements	<i>To be specified in the future</i>





Navigation and Routing – cross border & B2B

<p>Essential</p>	<ul style="list-style-type: none"> •Road Network •Road Classifications and Types •Geometry •Road Names and Road Numbers related to network •Appropriate geometry at intersections to reflect turns required •Ferry Routes •Routing Information – vehicle types and time restrictions, no entries, vehicle restrictions, turn restrictions, mandatory turns, One-Ways, Bridge Heights •High positional accuracy – (15 m or better) •Appropriate geometry at intersections to reflect turns required
<p>Additional</p>	<ul style="list-style-type: none"> •Other street inventory (bridges, tunnels, over and underpass indicators, walkways) •Real Time Traffic Information •Speed Limits •Topography (built up areas, industrial or woodland areas) •Ferry Information – for example, timetables •Temporary time dependant street attributes •Traffic calming
<p>Future requirements (Source: PTV)</p>	<ul style="list-style-type: none"> •Pedestrian and cycling attributes/network •Elderly disabled (barrier free) •Up-to-date POI information •Public Transport lines, stops •Inter-modal exchange points (park and ride, train stations) •Address information •Dynamic Content (traffic messages in sufficient quality, speed-time patterns, occupation and opening hours of parking lots)





Fleet Management – cross border & B2B

Essential	<ul style="list-style-type: none">•Motorways and A Roads•Geometry•Attribution including : restrictions on : road length, width, weight, gradients, height (bridges over and under), and turning restrictions, tunnels•Inter-modal connections•Ferry Routes•Tolling and Congestion Charging
Additional	<ul style="list-style-type: none">•Minor Road Network•Secure Parking•Real Time Traffic and Congestion Charging Information•Points of Interest•Periodic Time Restrictions•Restricted Routes•Service Areas
Future requirements	<i>To be specified in the future</i>





Safety (including ADAS applications)

– cross border & B2B

Essential	<ul style="list-style-type: none"> •N.B.**To Include same information as Navigation and Routing plus: •Ferry Routes •Height Restrictions •Road Curvature •Turning Restrictions •Bridges, tunnels •Signage and Road Markings •Traffic Regulations – restricted zones, speed (location content), safe speeds •Accurate Lane Information
Additional	<ul style="list-style-type: none"> •Live road conditions, for example, wet, icy, roads closed, animals on road, Points Of Interest •Route recommendations & warnings for road construction and travel conditions •Road markings, for example, no overtaking •Dynamic information such as road works
Future Requirements	<i>To be specified in the future</i>





Phase 1 Research aims

- Validate existing and identify other macro level drivers and key aspects affecting a European Road Data specification.
- Validate key User Groups for a European Road Data set.
- Identify and understand key applications of road data sets in Europe.
- Test the Roads data market segmentation model (as defined from initial analysis of databases from Bavaria, Sweden and GB) to identify similarities and differences.
- Identify and understand the most important sets of GI content and their criteria to enable detailed analysis of user need to be identified at a future project stage.
- Understand the underlying need for GI based standards as part of a European Road Data set.



Phase I Questionnaire Findings.

- Not quantitative – no statistical validity
- 13 responses were received out of a total of 19 requests, from across five countries (Austria, France, Germany, Sweden, UK), [this included four consortium members].
- All except one respondent replied from the combined perspectives of data ‘developer’, ‘supplier’ and ‘sales’.





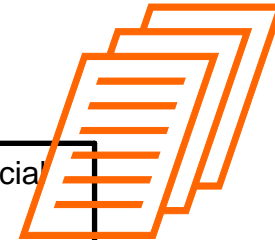
Phase I Questionnaire

Overview of initial results

- All stated identified high level drivers were “very important” or “important”
- ‘Logistics industry profitability’ and ‘public transport efficiency’ were identified as further important high level drivers
- For all the identified applications, the majority considered they would benefit from a European roads dataset.
- All the aspects of content identified, apart from media, were considered important by a majority of respondents.
- All the attributes of content identified were considered very important or important by a majority of respondents.



Key User Groups



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NOTE: User groups could be further segmented, for example, to a Level 3			



Applications

Asset Management
Road Charging (including Tolling)
Navigation and Routing
Fleet Management
Safety (including ADAS)
Mobility and Society Planning
Traffic Management

-  **Plus others**



How important to your organisation are the following aspects relating to the content for a potential European roads dataset?

•Road Type/Classification (e.g. Motorway)	•Road tolling indication (e.g. Toll Plaza/booth location)
•Road Names (e.g. High Street, Rue de Paris)	•Traffic Regulations (e.g. Speed limits)
•Intermodal connections (e.g Ferry and rail links)	•Road length (e.g. Length of links between nodes)
•Geometry/Network (e.g. Links, nodes)	•Administrative Boundaries (e.g. City Council boundaries)
•Indication of Road Restriction Information (e.g Bridge Heights information)	•Language i.e. Ability to translate into appropriate spoken language e.g. French, Swedish , and so on.)
•Road centre lines	•Restriction Information (e.g. Bridge heights)
•Symbology – (e.g. Tunnels, No entries)	•Points of Interest Data (e.g. Parking facilities, Service Stations)
•Facilities for vehicles and drivers (e.g. Service Station and parking)	

Content

Below are listed some content attributes for a potential European roads dataset.

How important would these be to your organisation.?

•Accuracy of attribution/ road names/numbers

•Accuracy of geometry

•Maintenance/Update regime for underlying network

•Maintenance/Update regime for other attribution e.g. Road Routing Restrictions, Points of Interest

•Format (e.g. GDF)

•Media

•Coverage (Completion)





Phase II questionnaire.

- Target audience 200+ European organisations
- Conducted Sept/Oct with selected telephone follow ups
- Principally addressing **detail of required attributions** for possible content sets.
- Key Input into other work packages



Phase II questionnaire.



CONTENT SET	ATTRIBUTE	CONTENT SET	ATTRIBUTE	CONTENT SET	ATTRIBUTE	
ROAD NETWORK	Geometry	ROUTE RESTRICTIONS (By specific user, type)	Load (e.g. Abnormal Loads, Wide Loads)	ROAD CLASSIFICATIONS	Motorway	
	Road Lengths		Type (e.g. Heavy Goods Vehicles)		E Roads (e.g. E0)	
	Road levels (e.g. above, below)		Use (e.g. Residents parking only, Public transport only)		A Roads	
	Precise modelling of Junctions Width		Maximum Height		B Roads	
UNIQUE IDENTIFIERS	Tram Network on Links	ROUTE CLASSIFICATIONS	Level Crossing	ROAD TYPE	Local Street	
	on Nodes		Ford		Primary Routes	
on Route Information	Roundabout		Single Carriageway			
BOUNDARIES	Administrative Boundaries		Traffic Calming	Dual Carriageway	CONTEXTUAL DATA	Roundabout
	Congestion		Gate	Slip Road		
GENERAL	Other		Barrier	Address		Imagery
	No Turn	Toll Booth	Steep	Topography (e.g. River, Woodland)		
	Mandatory Turn	Gradient	Speed Limits	Points of Interest (e.g. Petrol station)		
	No Entry	Speed Limits	Tunnel entrances	Urban Area		
	Access To (e.g. Access Prohibited to Heavy Goods Vehicles)	ROAD NAME	Road Name			
	Weight Restrictions	ROAD NUMBERING	Road Numbers			
	Restrictions	ROAD JUNCTIONS	Motorway junctions numbers	METADATA	Source Supplier	
	Width	ROUTE	One Way		Relative	





Phase II questionnaire.

To make your views count please contact :-

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