

DECOMMISSIONED ROAD - AN OPPORTUNITY FOR ACTIVE MODES?

Ivo Dostál ¹, Marek Havlíček ^{1,2}

¹ Transport Research Centre (CDV), Líšeňská 33a, 63600 Brno, Czechia

² Research Institute for Landscape, Lidická 25/27, 602 00 Brno, Czechia

<https://doi.org/10.11118/978-80-7701-025-2/0069>

Abstract

One of the benefits of reusing decommissioned roads is the possibility of their further use as minor roads with a strong focus on supporting active transport modes. In this paper, the class I roads in the territory of the South-Moravian Region were evaluated in the scope of their initial design within the existing classification from 1947. There have been significant changes in the traffic corridors over the approximately 80 years of development of the road network, with only 35% of the network to be categorised in the same class today, while 45% have been functionally downgraded to Class II or III and 20% have been completely removed from the road network, either by preservation as local streets or by complete removal. The research focused mainly on these degraded or removed corridors and their reuse for cycling and pedestrian infrastructure. The paper is complemented by examples of good practice documented during the field visits.

Key words: life cycle of road; Southern Moravia; bike trail; hike trail; reuse

Introduction

Space in the territory is a limited asset, and open countryside is becoming increasingly more scarce. Artificial surfaces already account for 4.3% of the EU-27 land area, and this share is increasing (EEA, 2019). Roads, railways and other linear infrastructure account for a significant part of this share. The infrastructure, like other products, has a life cycle. It includes planning, construction, operation, maintenance, and decommissioning. While conversion to cycleways or greenways is relatively common for abandoned railways (Eizaguirre et al., 2020; Rovelli et al., 2020; Dallatorre, 2022), the complete removal of a road is relatively rare; if it occurs, it is in the context of rewilding (Lacerte et al., 2022). However, the roads often also lose their functional significance within the road network and are operated as minor or local roads. Former important traffic corridors can thus find new use as traffic routes for cyclists or pedestrians and serve for everyday commuting as well as for recreational purposes.

This work aims to map the route of former Class I trunk roads (according to their original state when the current classification was established in 1947) in the territory of the South Moravian Region, their functional classification at present, and to monitor the forms of their use to support active modes of transport Fig. 1.

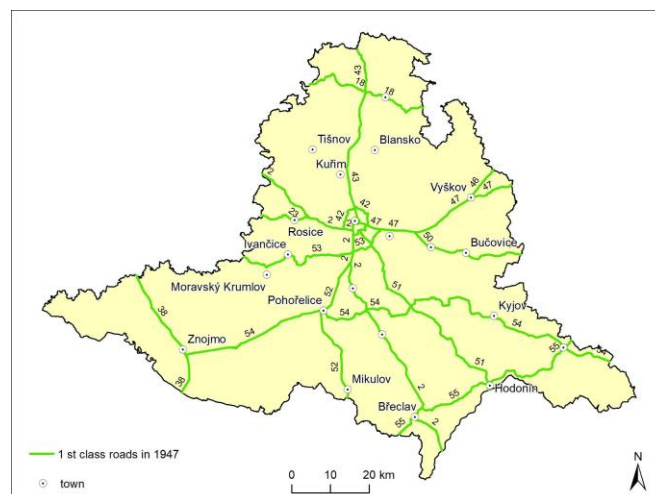


Fig. 1: Class I road network in 1947 (with number of road)

Material and methods

The basis of the work was research conducted using GIS (ArcGIS 10.6) based on the interpretation of historical map documents. The definition of the historical road network and its classification into individual classes was based on the 1:200,000 State and District Roads map set published by the Ministry of Technology of Czechoslovakia in 1947. The spatial projection of each road was refined to a working scale of 1:10,000 using the Historical Orthophotomap from the early 1950s available on the INSPIRE portal. The current use of the road network was assessed based on current 1:10,000 scale mapping using aerial photographs from 2024 and tourist maps. The current road network was divided into the following categories with individual codes, thus in the similar way used previously in Havlíček et al. (2022):

- 1 - motorways
- 2a - expressway
- 2 - Class I road
- 3 - Class II road
- 4 - Class III road
- 5 - on-ramp, feeder roads
- 7 - ferry
- 8 - local road
- 9 - other roads with limited access
- x - abandoned section

The second follow-up phase involved fieldwork at sites that required refinement of map interpretation and those that represented good examples of pedestrian or bicycle use of the former transportation corridor.

The study area is the territory of the South Moravian Region, one of the self-governing regions of the Czech Republic, located in the southeast of the country and bordering Austria and Slovakia. The total area is 7.187.83 sq.km, and there are 673 municipalities, of which 49 have the status of towns.

Results and discussion

A total of 678.5 km belonging to 14 different Class I roads (see Table 1, Fig. 2, Fig. 3) were identified in the area as of the initial network design from 1947. Two of the roads (I/46 and I/53) have been completely recategorised to a lower level, while others (I/2, I/42, I/51 or I/52) have remained Class I roads for only a small length. On the other hand, the corridor of the I/38 has remained virtually unchanged throughout the study period.

Tab. 1: Class I roads from 1947 and their current functional category [km]

Road nr.	1	2a	2	3	4	5	8	x	total
2			2.76	63.75	4.7		8.48	18.51	98.19
18			15.43	13.71	0.13		3.33	4.13	36.74
23			9.95		1.38		0.76	2.71	14.8
38			34.62				0.28	0.67	35.57
42		0.67	2.91	0.67	0.97	0,2	12.75	5.33	23.49
43			29.97	0.8	4.26	0.25	14.28	2.05	51.6
46					8.64			0.24	8.88
47			4.86	27.35			6.82	5.11	44.14
50			25.51		2.2		1.64	2.28	31.63
51			2.45	48.7			2.26	6.57	59.99
52	0.25		8.71	4.9	14.74		4.04	8.32	40.95
53				34.78	5.07		1.24	3.16	44.24

Road nr.	1	2a	2	3	4	5	8	x	total
54			79.61	39.79	2		4.12	6.94	132.45
55			22.85	1.82	19.7		3.91	7.55	55.83
Sum	0.25	0.67	239.62	236.26	63.79	0.45	63.89	73.55	678.5

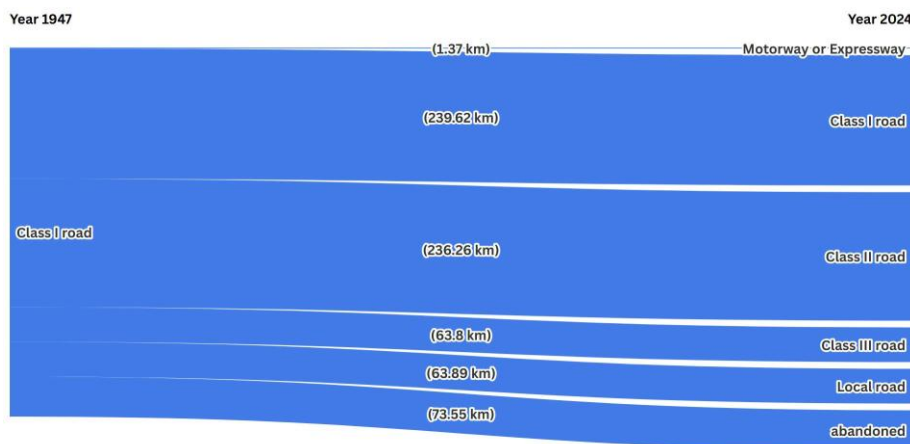


Fig. 2. Change in functional categories of road corridors [km]

Fig. 2 shows the change in functional categorisation between 1947 and 2025. Of the total length of the roads surveyed, only 35.3% remained in the original category of Class I roads until today. The largest proportion (44.3%) were corridors whose functional classification was downgraded to Class II, Class III or feeder road while only 0.14% were upgraded to motorways or expressways. In terms of use by active modes, the most interesting sections are those that have been decommissioned from the road network and are now used as local roads or have been completely removed - 20.2% of original corridors.

For the preserved Class II roads in the South Moravian Region (current category 2), there are currently 14 km of marked cycling trails, and 13 km of cycling paths that have a separate route along the main road (Table 2). Marked hike trails are only minimally represented on Class I roads (4 km), because pedestrian traffic is not desirable on this type of road with high traffic intensity. Class II roads (current category 3) have a significantly higher representation of marked cycling trails (52 km) due to the lower traffic intensity. Class II roads are also more often used as marked hike trails (11 km). The remains of the original Class I roads from 1947 in current categories 4 and 8 (Class III road and Local road) are relatively often used as marked cycling trails. Abandoned sections of former Class I roads are now partly used as marked hike trails, occasionally as marked cycling trails, and exceptionally as cycling paths.

Case studies

In the vicinity of the Rohlenka site, a former inn and today's motor rest stop connected to the D1 motorway, there is a remnant of the former Class I road number 47 and also the former imperial road between the cities of Brno and Olomouc. The direct direction of this currently Class II road is disrupted by a newly built roundabout and the D1 motorway running on the site of the traditional inn (Fig. 4). The front part of the photograph includes a section of this road, which is used concurrently as a marked cycling trail to the top of Žuráň hill, which is an important site of the Battle of the Three Emperors at Austerlitz (1805).

Another example of the current use of a former Class I road for tourism is the location of the former road number 2, which connected the cities of Brno and Bratislava. Today, in the terrain around the town of Židlochovice, the remains of the road are still visible in the form of a local road with paving stones as a marked cycling trail, in places in the original width of the road profile, but more often in a narrowed profile due to the absorption of the road by landscape processes (Fig. 5). On Fig. 5, the transition from a local road to an abandoned section is recorded, currently used as a cycling path with the exclusion of car traffic.

Tab. 2: Current use of the studied corridors for active mods

Current category	Length [km]	Marked cycling trail [km]	Cycling path [km]	Marked hike trail [km]
1	0.25	0.00	0.00	0.00
2	239.62	14.17	13.27	3.85
2a	0.67	0.00	0.00	0.00
3	236.26	52.43	3.26	11.06
4	63.79	10.94	7.28	0.28
5	0.45	0.00	0.00	0.00
8	63.89	12.89	0.47	0.00
x	73.55	2.87	0.98	6.53
Total	678.50	93.30	25.26	21.72

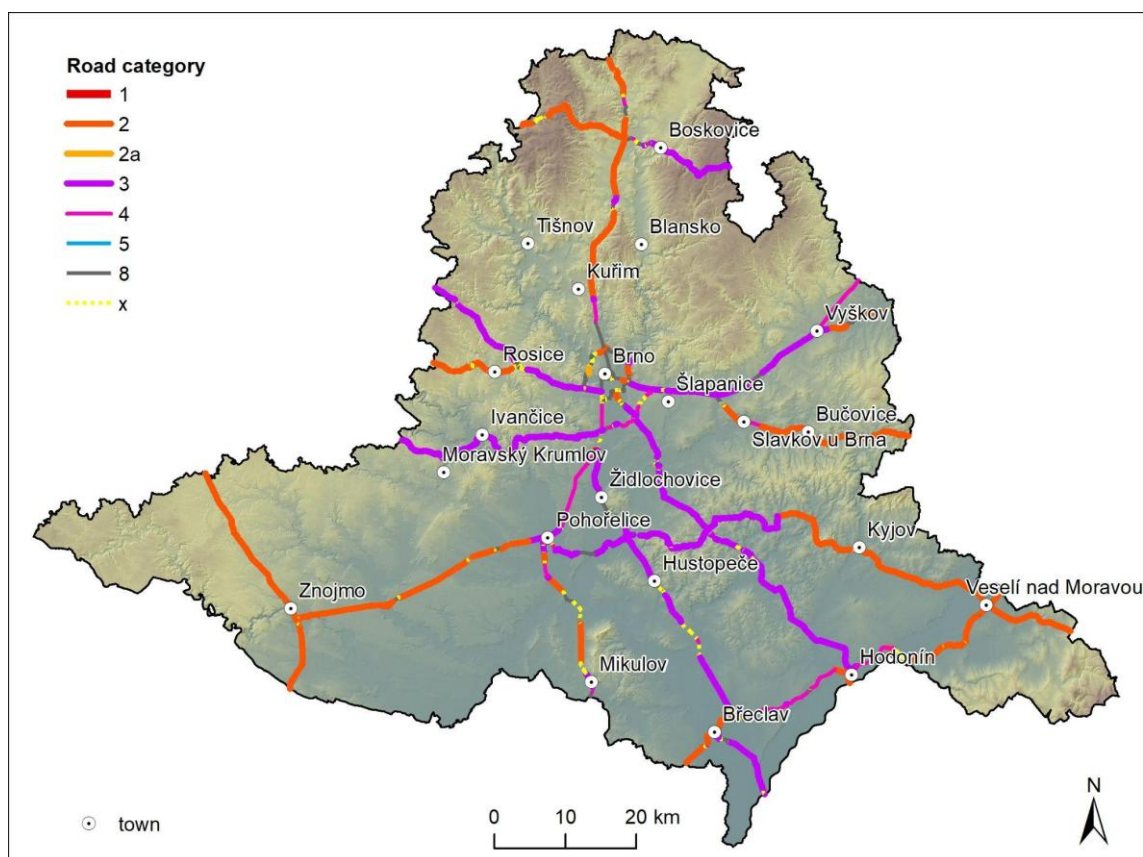


Fig. 3: Current use of Class I road from 1947

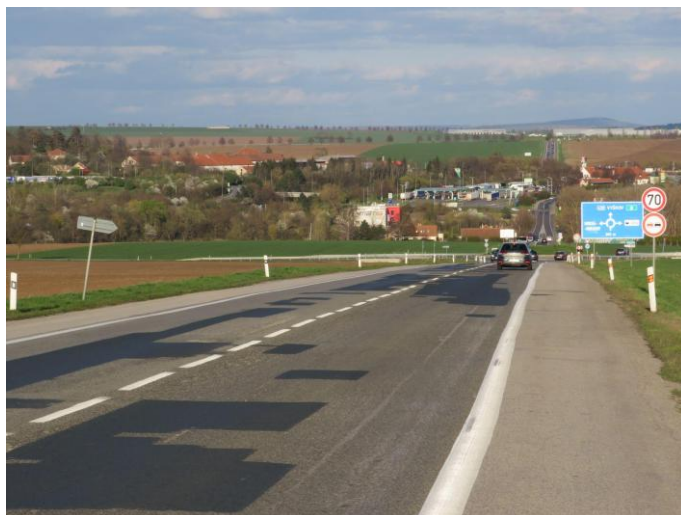


Fig. 4: Current Class II road with marked cycling trail near Rohlenka motor rest stop



Fig. 5: Local road and abandoned section of former Class I road near Židlochovice town

Some former Class I roads in the South Moravian Region are characterized by the presence of old original tree alleys, which were part of these transport routes already at the time of the creation of imperial roads in the 18th and 19th centuries. In the vicinity of Rousínov town, there is a remnant of this road with old trees in its current form as a local road and marked cycling trail. In the vicinity, there is a junction with other marked cycling trails with a rest area and shelter for cyclists.

In places of some former sections of Class I road there are also original road bollards, or old bridges (Fig. 7). In the vicinity of the village of Branišovice there is a currently operating hotel and a coaching inn, which served here in the past. Today a local road with marked cycling trail passes through here.

Conclusion

Class I roads in South Moravia have maintained their functionality at the same level for 35% of the roads over the past 80 years. Only exceptionally have some sections of Class I roads been used for tourism. Approximately 45% of the road sections have been converted to Class II or Class III roads. Of these roads, many have been used for tourism purposes as marked cycling trails. 20% have been completely removed from the road network, either by maintaining them as local roads or by completely removing them. Degraded or removed corridors are being reused for cycling and walking infrastructure. The document is supplemented with examples of good practice from field visits.



Fig. 6: Local road with new function marked cycling trail near Rousínov town



Fig. 7: Local road with new function marked cycling trail in Branišovice village

References

- Dallatorre, G. (2022). Camminare come progetto: coreografie di paesaggio attraverso ferrovie dismesse. *Ri-Vista. Research for Landscape Architecture*, 20(1):238–263. doi: 10.36253/rv-12533
- EEA (2019). *The European environment — state and outlook 2020*. Luxembourg: Publications Office of the European Union. ISBN 978-92-9480-115-9. doi: 10.2800/48006
- Eizaguirre, A.; Grijalba, O.; Hernández, R. (2020). An Integrated Approach to Transportation and Land-Use Planning for the Analysis of Former Railway Nodes in Sustainable Transport Development: The Case of the Vasco-Navarro Railway. *Sustainability*, 13:322. doi: 10.3390/su13010322.
- Havlíček, M.; Dostál, I.; Pavelková, R. (2022). Water Reservoirs as a Driver of Anthropogenic Changes in Landscape and Transport Networks: The Czech Republic Experience. *Water*, 14:1870. doi: 10.3390/w14121870.
- Lacerte, R.; Leblond, M.; St-Laurent, M.H. (2022). End of the road: Short-term responses of a large mammal community to forest road decommissioning. *Journal for Nature Conservation*. 69:126256. doi: 10.1016/j.jnc.2022.126256.
- Rovelli, R.; Senes, G.; Fumagalli, N.; Sacco, J.; De Montis, A. (2020). From railways to greenways: a complex index for supporting policymaking and planning. A case study in Piedmont (Italy). *Land Use Policy*, 99:104835, ISSN 0264-8377. doi:10.1016/j.landusepol.2020.104835.

Acknowledgement

This paper was produced in CDV with the financial support of the Ministry of Transport of the Czech Republic within the programme of long-term conceptual development of research institutions (Decision nr. MD-8449/2021-730/145) and in the Research Institute for Landscape with the financial support of the Ministry of Environment (VUK-IP-00027073).

Souhrn

Jednou z výhod opětovného využití vyřazených silnic je možnost jejich dalšího využití jako silnic nižšího významu s důrazem na podporu aktivních druhů dopravy. V tomto příspěvku byly hodnoceny silnice I. třídy na území Jihomoravského kraje v rozsahu jejich původního návrhu v rámci stávající klasifikace z roku 1947. Za přibližně 80 let vývoje silniční sítě došlo k výrazným změnám v dopravních koridorech, přičemž pouze 35 % sítě je dnes zařazeno do stejné třídy, zatímco 45 % bylo funkčně degradováno na II. nebo III. třídu a 20 % bylo ze silniční sítě zcela vyřazeno, a to buď zachováním jako místní komunikace, nebo úplným odstraněním. Výzkum se zaměřil především na tyto degradované nebo odstraněné koridory a jejich opětovné využití pro cyklistickou a pěší infrastrukturu. Dokument je doplněn o příklady dobré praxe zdokumentovanými během terénních návštěv.

Contact:

Ivo Dostál

E-mail: ivo.dostal@cdv.cz

Open Access. This article is licensed under the terms of the Creative Commons Attribution 4.0 International License, CC-BY 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

