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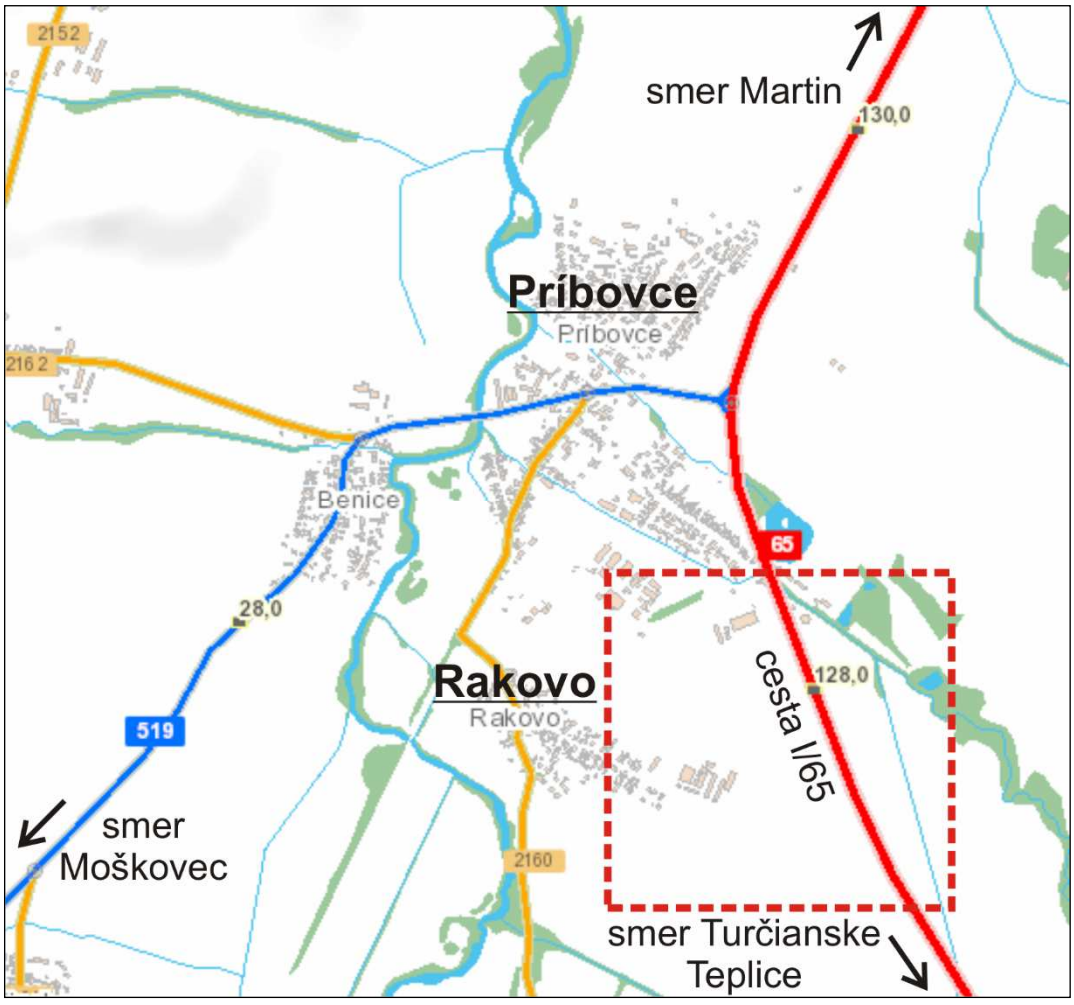
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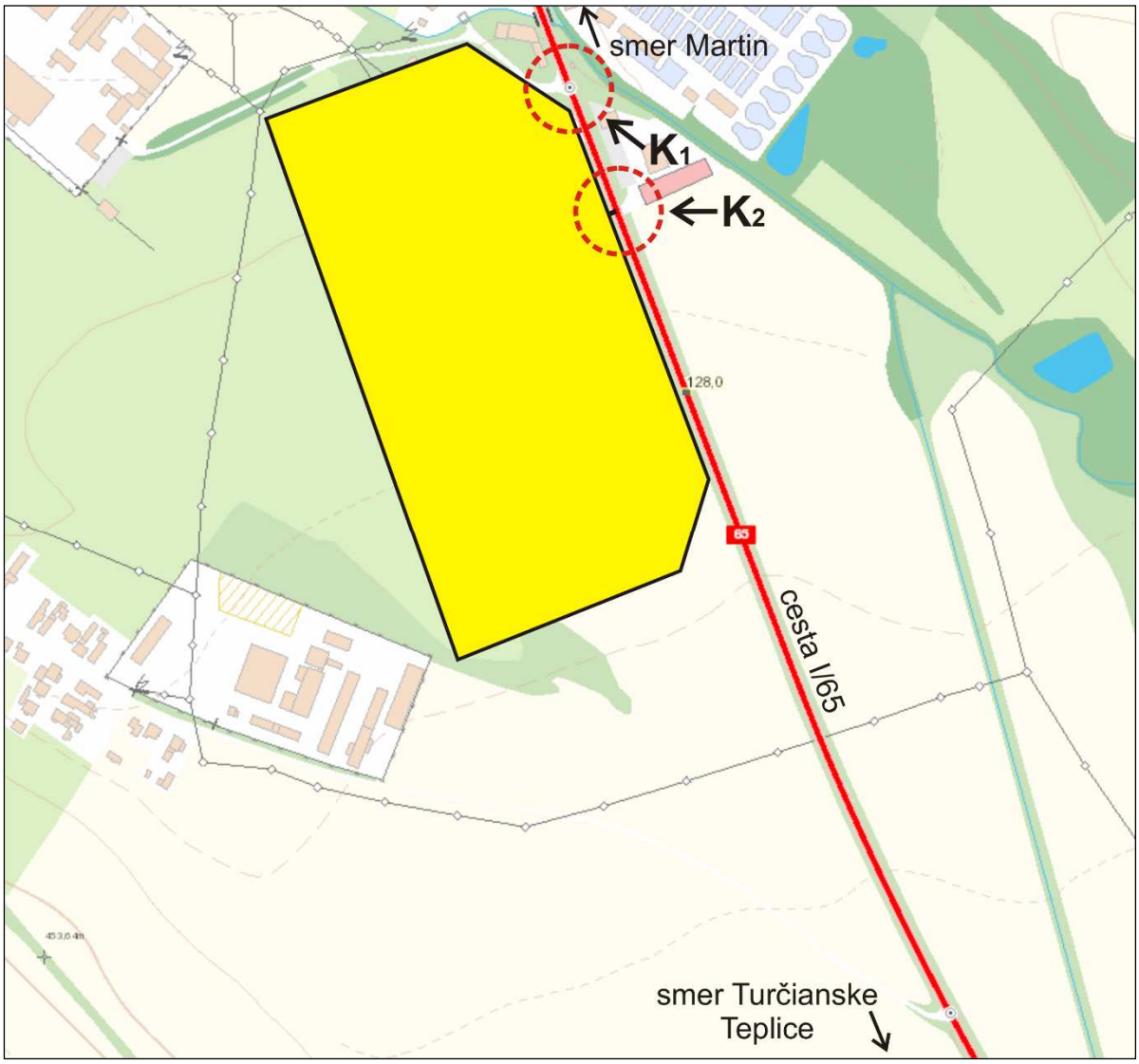
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# *1. ÚVOD*

Cieľom tohto elaborátu je z hľadiska kapacity posúdiť navrhovanú okružnú križovatku na ceste I/65, ktorá bude obsluhovať navrhované Logistické centrum Rakovo, ako aj plánovanú ČS PHM VOMS.




*Obrázok č. 1*
*schematická mapa - Príbovce / Rakovo*
*červeným ohraničená plocha je detailnejšie znázornená na obrázku č. 2*
*zdroj: Slovenská správa ciest - Portál IS MCS, ismcs.cdb.sk/portal/*



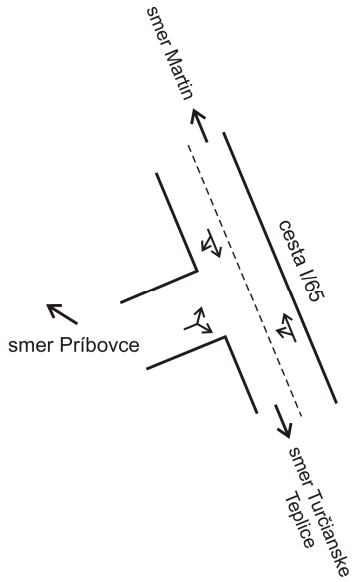

*Obrázok č. 2*
*schematická mapa - Rakovo, detail riešeného územia*
*žltou farbou je vyznačené územie stavby*
*$K_1$ je križovatka v ktorej bol vykonaný dopravný prieskum*
*$K_2$ je miesto navrhovanej okružnej križovatky*
*zdroj: Slovenská správa ciest - Portál IS MCS, ismcs.cdb.sk/portal/*

# *2. DOPRAVNO – INŽINIERSKE PODKLADY K PROJEKTU*

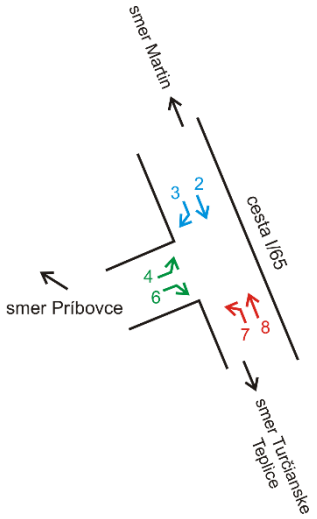
1. Dopravný prieskum križovatiek $K_1$ na ceste I/65
   26. september 2019
2. Územno plánovacie podklady poskytnuté zadávateľom úlohy
3. Projektovanie križovatiek na pozemných komunikáciách - STN 73 6102
   SÚTN; 2004 (následne uvádzane ako STN)
4. Výpočet kapacít pozemných komunikácií - TP 102
   MDVRR; december 2015 (následne uvádzane ako HCM)
5. Prognózovanie výhľadových intenzít na cestnej sieti do roku 2040 - TP 070
   MDVRR; júl 2013

# 3. ANALÝZA DOPRAVNÉHO ZAŤAŽENIA

Dopravný prieskum križovatky $K_1$ sa konal dňa 26. septembra 2019 (deň: štvrtok) v čase od 6:00 do 18:00 hod.




*Obrázok č. 3*
*schematické znázornenie križovatky $K_1$*




*Obrázok č. 4*
*označenie jednotlivých dopravných prúdov križovatky $K_1$*

Výsledky prieskumu - prúdy 2 a 3:

| Prúd č. | 2 | | | | | 3 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Intenzita (voz/15min) | | | | | Intenzita (voz/15min) | | | | |
| Čas od: | OV+NV 1 jv | NV 1,5jv | NV 2,5jv | M | B | OV+NV 1 jv | NV 1,5jv | NV 2,5jv | M | B |
| 6:00 | 23 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 6:15 | 43 | 6 | 20 | 0 | 0 | 2 | 0 | 1 | 0 | 0 |
| 6:30 | 47 | 5 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 | 59 | 4 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 | 57 | 4 | 13 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 7:15 | 84 | 7 | 15 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 7:30 | 87 | 9 | 16 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 7:45 | 91 | 11 | 15 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 8:00 | 93 | 7 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 | 79 | 5 | 15 | 0 | 0 | 3 | 0 | 1 | 0 | 0 |
| 8:30 | 76 | 12 | 16 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 8:45 | 66 | 9 | 16 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 9:00 | 65 | 5 | 14 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 9:15 | 77 | 8 | 10 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 9:30 | 71 | 7 | 14 | 0 | 0 | 3 | 1 | 0 | 0 | 2 |
| 9:45 | 74 | 11 | 18 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 10:00 | 69 | 5 | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 10:15 | 84 | 6 | 17 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| 10:30 | 70 | 11 | 14 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 10:45 | 82 | 7 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 11:00 | 68 | 5 | 21 | 1 | 0 | 2 | 0 | 1 | 0 | 0 |
| 11:15 | 67 | 10 | 11 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 11:30 | 64 | 8 | 21 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| 11:45 | 68 | 2 | 20 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| 12:00 | 70 | 6 | 21 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 12:15 | 63 | 10 | 16 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 12:30 | 75 | 14 | 19 | 1 | 2 | 1 | 0 | 0 | 0 | 0 |
| 12:45 | 60 | 4 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13:00 | 72 | 4 | 18 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 13:15 | 63 | 5 | 11 | 0 | 1 | 3 | 0 | 0 | 0 | 0 |
| 13:30 | 68 | 9 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13:45 | 64 | 3 | 5 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| 14:00 | 93 | 2 | 13 | 2 | 0 | 1 | 0 | 0 | 0 | 0 |
| 14:15 | 95 | 3 | 17 | 1 | 0 | 3 | 0 | 0 | 0 | 0 |
| 14:30 | 90 | 3 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 14:45 | 86 | 7 | 15 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 15:00 | 101 | 2 | 8 | 4 | 0 | 3 | 0 | 0 | 0 | 1 |
| 15:15 | 92 | 2 | 17 | 2 | 0 | 4 | 1 | 0 | 0 | 0 |
| 15:30 | 109 | 4 | 16 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 15:45 | 106 | 2 | 9 | 0 | 0 | 3 | 0 | 1 | 0 | 0 |
| 16:00 | 97 | 8 | 9 | 3 | 0 | 4 | 0 | 0 | 0 | 0 |
| 16:15 | 78 | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:30 | 98 | 6 | 14 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 16:45 | 101 | 2 | 9 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 17:00 | 109 | 5 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17:15 | 88 | 3 | 19 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 17:30 | 92 | 4 | 17 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 17:45 | 87 | 3 | 13 | 0 | 0 | 5 | 0 | 0 | 0 | 0 |

Výsledky prieskumu - prúdy 4 a 6:

| Prúd č. | 4 | | | | | 6 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Intenzita (voz/15min) | | | | | Intenzita (voz/15min) | | | | |
| Čas od: | OV+NV 1 jv | NV 1,5jv | NV 2,5jv | M | B | OV+NV 1 jv | NV 1,5jv | NV 2,5jv | M | B |
| 6:00 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:15 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:30 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:45 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:00 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 7:15 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 7:30 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 7:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 8:00 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 8:15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:30 | 3 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 8:45 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 |
| 9:00 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 9:15 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 9:30 | 2 | 1 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 0 |
| 9:45 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 10:00 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:15 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10:30 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 10:45 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:00 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 11:15 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:30 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 11:45 | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 12:00 | 2 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 |
| 12:15 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 12:30 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 12:45 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 13:00 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 13:15 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| 13:30 | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 13:45 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 14:00 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 14:15 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 |
| 14:30 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14:45 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 15:00 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15:15 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 15:30 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 15:45 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 16:00 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 16:15 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 16:30 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16:45 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17:15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17:30 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17:45 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Výsledky prieskumu - prúdy 7 a 8:

| Prúd č. | 7 | | | | | 8 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Intenzita (voz/15min) | | | | | Intenzita (voz/15min) | | | | |
| Čas od: | OV+NV 1 jv | NV 1,5jv | NV 2,5jv | M | B | OV+NV 1 jv | NV 1,5jv | NV 2,5jv | M | B |
| 6:00 | 1 | 0 | 0 | 0 | 0 | 73 | 9 | 8 | 0 | 1 |
| 6:15 | 1 | 0 | 0 | 0 | 0 | 74 | 6 | 7 | 0 | 0 |
| 6:30 | 0 | 0 | 0 | 0 | 0 | 117 | 4 | 10 | 0 | 0 |
| 6:45 | 0 | 0 | 0 | 0 | 0 | 89 | 4 | 14 | 0 | 0 |
| 7:00 | 4 | 0 | 0 | 0 | 0 | 87 | 6 | 12 | 0 | 0 |
| 7:15 | 2 | 0 | 0 | 0 | 0 | 122 | 6 | 8 | 0 | 1 |
| 7:30 | 1 | 0 | 2 | 0 | 0 | 84 | 9 | 7 | 0 | 0 |
| 7:45 | 1 | 0 | 0 | 0 | 0 | 89 | 8 | 11 | 0 | 0 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 69 | 7 | 11 | 0 | 0 |
| 8:15 | 1 | 0 | 0 | 0 | 0 | 108 | 2 | 19 | 0 | 0 |
| 8:30 | 3 | 1 | 0 | 0 | 0 | 106 | 7 | 24 | 0 | 0 |
| 8:45 | 2 | 0 | 0 | 0 | 0 | 84 | 8 | 11 | 0 | 0 |
| 9:00 | 1 | 1 | 0 | 0 | 0 | 99 | 5 | 15 | 0 | 0 |
| 9:15 | 0 | 0 | 0 | 0 | 0 | 90 | 5 | 13 | 0 | 0 |
| 9:30 | 2 | 0 | 0 | 0 | 0 | 82 | 5 | 7 | 0 | 0 |
| 9:45 | 2 | 0 | 0 | 0 | 0 | 77 | 8 | 6 | 0 | 0 |
| 10:00 | 1 | 0 | 0 | 0 | 0 | 69 | 4 | 11 | 0 | 0 |
| 10:15 | 1 | 0 | 0 | 0 | 0 | 78 | 9 | 10 | 0 | 0 |
| 10:30 | 2 | 0 | 0 | 0 | 0 | 74 | 6 | 20 | 0 | 1 |
| 10:45 | 2 | 0 | 0 | 0 | 0 | 72 | 5 | 12 | 0 | 0 |
| 11:00 | 1 | 0 | 1 | 0 | 0 | 67 | 9 | 14 | 0 | 0 |
| 11:15 | 0 | 0 | 0 | 0 | 0 | 69 | 5 | 14 | 0 | 0 |
| 11:30 | 1 | 0 | 0 | 0 | 0 | 78 | 2 | 7 | 0 | 0 |
| 11:45 | 0 | 0 | 0 | 0 | 0 | 61 | 6 | 11 | 0 | 0 |
| 12:00 | 1 | 0 | 0 | 0 | 0 | 78 | 8 | 13 | 0 | 0 |
| 12:15 | 2 | 0 | 0 | 0 | 0 | 73 | 7 | 24 | 0 | 0 |
| 12:30 | 0 | 0 | 0 | 0 | 0 | 68 | 4 | 16 | 0 | 1 |
| 12:45 | 3 | 0 | 0 | 0 | 0 | 64 | 8 | 16 | 3 | 0 |
| 13:00 | 6 | 0 | 0 | 0 | 0 | 69 | 8 | 10 | 1 | 0 |
| 13:15 | 2 | 0 | 0 | 0 | 0 | 78 | 6 | 11 | 0 | 0 |
| 13:30 | 0 | 0 | 0 | 0 | 0 | 81 | 4 | 15 | 0 | 0 |
| 13:45 | 0 | 0 | 0 | 0 | 0 | 79 | 4 | 22 | 0 | 0 |
| 14:00 | 2 | 0 | 0 | 0 | 0 | 69 | 5 | 7 | 0 | 0 |
| 14:15 | 1 | 0 | 0 | 0 | 0 | 85 | 8 | 14 | 0 | 0 |
| 14:30 | 1 | 0 | 0 | 0 | 0 | 73 | 7 | 12 | 0 | 0 |
| 14:45 | 2 | 0 | 0 | 0 | 0 | 83 | 2 | 8 | 0 | 0 |
| 15:00 | 2 | 0 | 1 | 0 | 0 | 105 | 5 | 12 | 1 | 0 |
| 15:15 | 0 | 0 | 0 | 0 | 0 | 89 | 9 | 11 | 0 | 0 |
| 15:30 | 0 | 0 | 0 | 0 | 0 | 91 | 4 | 17 | 0 | 2 |
| 15:45 | 0 | 0 | 0 | 0 | 0 | 82 | 7 | 15 | 0 | 0 |
| 16:00 | 1 | 0 | 0 | 0 | 0 | 57 | 6 | 11 | 0 | 0 |
| 16:15 | 0 | 0 | 0 | 0 | 0 | 83 | 6 | 17 | 0 | 0 |
| 16:30 | 2 | 0 | 0 | 0 | 0 | 83 | 4 | 7 | 2 | 0 |
| 16:45 | 0 | 0 | 0 | 0 | 0 | 60 | 4 | 7 | 2 | 0 |
| 17:00 | 1 | 0 | 0 | 0 | 0 | 73 | 7 | 12 | 0 | 0 |
| 17:15 | 1 | 0 | 0 | 0 | 0 | 91 | 2 | 18 | 0 | 0 |
| 17:30 | 0 | 0 | 0 | 0 | 0 | 79 | 4 | 14 | 3 | 0 |
| 17:45 | 0 | 0 | 0 | 0 | 1 | 76 | 4 | 12 | 0 | 0 |

*Vysvetlivky:*

*OA - osobné automobily a pick up*
*N - nákladné automobily, dodávky, traktory*
*A - autobusy*
*TN - návesové súpravy, prívesy*
*M - motocykle*
*B - bicykle*

Výsledky prieskumu $K_2$ - prúdy 2 ($K_1$ prúd 2 + $K_1$ prúd 6) a 8 ($K_1$ prúd 8 + $K_1$ prúd 7)

| Prúd č. | 2 Martin - Turčianske Teplice | | | | | | 8 Turčianske Teplice – Martin | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Čas od: | Intenzita (voz/15min) | | | | | | Intenzita (voz/15min) | | | | | |
| | OA | N | A | TN | M | B | OA | N | A | TN | M | B |
| 6:00 | 23 | 0 | 0 | 12 | 0 | 0 | 74 | 6 | 3 | 8 | 0 | 1 |
| 6:15 | 43 | 5 | 1 | 20 | 0 | 0 | 75 | 5 | 1 | 7 | 0 | 0 |
| 6:30 | 47 | 4 | 1 | 20 | 0 | 0 | 117 | 4 | 0 | 10 | 0 | 0 |
| 6:45 | 59 | 1 | 3 | 20 | 0 | 0 | 89 | 4 | 0 | 14 | 0 | 0 |
| 7:00 | 57 | 4 | 1 | 14 | 0 | 1 | 91 | 4 | 2 | 12 | 0 | 0 |
| 7:15 | 86 | 6 | 1 | 15 | 0 | 0 | 124 | 5 | 1 | 8 | 0 | 1 |
| 7:30 | 88 | 9 | 0 | 16 | 0 | 0 | 85 | 7 | 2 | 9 | 0 | 0 |
| 7:45 | 92 | 10 | 1 | 15 | 0 | 0 | 90 | 8 | 0 | 11 | 0 | 0 |
| 8:00 | 95 | 6 | 1 | 17 | 0 | 0 | 69 | 6 | 1 | 11 | 0 | 0 |
| 8:15 | 79 | 5 | 0 | 15 | 0 | 0 | 109 | 2 | 0 | 19 | 0 | 0 |
| 8:30 | 77 | 12 | 1 | 16 | 0 | 0 | 109 | 8 | 0 | 24 | 0 | 0 |
| 8:45 | 68 | 9 | 0 | 18 | 0 | 0 | 86 | 7 | 1 | 11 | 0 | 0 |
| 9:00 | 66 | 4 | 1 | 14 | 0 | 0 | 100 | 6 | 0 | 15 | 0 | 0 |
| 9:15 | 79 | 8 | 0 | 10 | 0 | 0 | 90 | 4 | 1 | 13 | 0 | 0 |
| 9:30 | 72 | 6 | 1 | 14 | 0 | 0 | 84 | 4 | 1 | 7 | 0 | 0 |
| 9:45 | 74 | 9 | 3 | 18 | 0 | 0 | 79 | 7 | 1 | 6 | 0 | 0 |
| 10:00 | 69 | 4 | 1 | 14 | 0 | 0 | 70 | 3 | 1 | 11 | 0 | 0 |
| 10:15 | 84 | 5 | 1 | 17 | 1 | 0 | 79 | 8 | 1 | 10 | 0 | 0 |
| 10:30 | 71 | 11 | 0 | 14 | 1 | 0 | 76 | 6 | 0 | 20 | 0 | 1 |
| 10:45 | 82 | 6 | 1 | 9 | 0 | 0 | 74 | 5 | 0 | 12 | 0 | 0 |
| 11:00 | 69 | 4 | 1 | 21 | 1 | 0 | 68 | 8 | 1 | 15 | 0 | 0 |
| 11:15 | 67 | 8 | 2 | 11 | 0 | 0 | 69 | 5 | 0 | 14 | 0 | 0 |
| 11:30 | 65 | 7 | 1 | 22 | 0 | 0 | 79 | 2 | 0 | 7 | 0 | 0 |
| 11:45 | 70 | 2 | 0 | 20 | 1 | 0 | 61 | 6 | 0 | 11 | 0 | 0 |
| 12:00 | 73 | 6 | 0 | 21 | 0 | 0 | 79 | 7 | 1 | 13 | 0 | 0 |
| 12:15 | 65 | 10 | 0 | 16 | 0 | 0 | 75 | 7 | 0 | 24 | 0 | 0 |
| 12:30 | 78 | 11 | 3 | 19 | 1 | 2 | 68 | 4 | 0 | 16 | 0 | 1 |
| 12:45 | 61 | 4 | 0 | 12 | 0 | 0 | 67 | 6 | 2 | 16 | 3 | 0 |
| 13:00 | 73 | 4 | 0 | 18 | 0 | 0 | 75 | 6 | 2 | 10 | 1 | 0 |
| 13:15 | 67 | 4 | 1 | 11 | 0 | 1 | 80 | 6 | 0 | 11 | 0 | 0 |
| 13:30 | 71 | 9 | 0 | 6 | 0 | 0 | 81 | 1 | 3 | 15 | 0 | 0 |
| 13:45 | 65 | 2 | 1 | 5 | 1 | 0 | 79 | 4 | 0 | 22 | 0 | 0 |
| 14:00 | 94 | 1 | 1 | 13 | 2 | 0 | 71 | 4 | 1 | 7 | 0 | 0 |
| 14:15 | 98 | 2 | 1 | 18 | 1 | 0 | 86 | 7 | 1 | 14 | 0 | 0 |
| 14:30 | 90 | 3 | 0 | 8 | 0 | 0 | 74 | 6 | 1 | 12 | 0 | 0 |
| 14:45 | 87 | 5 | 2 | 15 | 0 | 0 | 85 | 2 | 0 | 8 | 0 | 0 |
| 15:00 | 101 | 1 | 1 | 8 | 4 | 0 | 107 | 5 | 0 | 13 | 1 | 0 |
| 15:15 | 93 | 0 | 2 | 17 | 2 | 0 | 89 | 7 | 2 | 11 | 0 | 0 |
| 15:30 | 110 | 4 | 0 | 16 | 1 | 0 | 91 | 3 | 1 | 17 | 0 | 2 |
| 15:45 | 108 | 2 | 0 | 9 | 0 | 0 | 82 | 7 | 0 | 15 | 0 | 0 |
| 16:00 | 99 | 7 | 1 | 9 | 3 | 0 | 58 | 4 | 2 | 11 | 0 | 0 |
| 16:15 | 81 | 2 | 2 | 7 | 0 | 0 | 83 | 6 | 0 | 17 | 0 | 0 |
| 16:30 | 98 | 6 | 0 | 14 | 0 | 0 | 85 | 4 | 0 | 7 | 2 | 0 |
| 16:45 | 102 | 2 | 0 | 9 | 0 | 0 | 60 | 3 | 1 | 7 | 2 | 0 |
| 17:00 | 110 | 4 | 1 | 7 | 0 | 0 | 74 | 5 | 2 | 12 | 0 | 0 |
| 17:15 | 88 | 2 | 1 | 19 | 0 | 0 | 92 | 2 | 0 | 18 | 0 | 0 |
| 17:30 | 93 | 4 | 0 | 17 | 0 | 0 | 79 | 4 | 0 | 14 | 3 | 0 |
| 17:45 | 87 | 3 | 0 | 13 | 0 | 0 | 76 | 3 | 1 | 12 | 0 | 1 |

Predpokladané zaťaženie Logistického centra Rakovo medzi 5:30-12:00

| | OA | | TN | |
|---|---|---|---|---|
| Čas | vstup | výstup | vstup | výstup |
| 5:30 | 15 | 0 | 6 | 0 |
| 5:45 | 15 | 0 | 6 | 0 |
| 6:00 | 0 | 0 | 7 | 0 |
| 6:15 | 0 | 0 | 7 | 0 |
| 6:30 | 0 | 0 | 7 | 0 |
| 6:45 | 0 | 0 | 7 | 0 |
| 7:00 | 18 | 0 | 7 | 5 |
| 7:15 | 18 | 0 | 7 | 6 |
| 7:30 | 0 | 0 | 7 | 6 |
| 7:45 | 0 | 0 | 7 | 6 |
| 8:00 | 37 | 0 | 7 | 4 |
| 8:15 | 38 | 0 | 7 | 4 |
| 8:30 | 22 | 0 | 7 | 4 |
| 8:45 | 23 | 0 | 7 | 5 |
| 9:00 | 0 | 0 | 7 | 4 |
| 9:15 | 0 | 0 | 7 | 4 |
| 9:30 | 0 | 0 | 7 | 4 |
| 9:45 | 0 | 0 | 7 | 5 |
| 10:00 | 0 | 0 | 5 | 3 |
| 10:15 | 0 | 0 | 6 | 3 |
| 10:30 | 0 | 0 | 5 | 3 |
| 10:45 | 0 | 0 | 6 | 2 |
| 11:00 | 0 | 0 | 6 | 3 |
| 11:15 | 0 | 0 | 6 | 3 |
| 11:30 | 0 | 0 | 5 | 3 |
| 11:45 | 0 | 0 | 6 | 2 |

Predpokladané zaťaženie Logistického centra Rakovo medzi 12:00-18:00

| | OA | | TN | |
|---|---|---|---|---|
| Čas | vstup | výstup | vstup | výstup |
| 12:00 | 0 | 0 | 1 | 0 |
| 12:15 | 0 | 15 | 1 | 0 |
| 12:30 | 0 | 15 | 1 | 0 |
| 12:45 | 0 | 0 | 1 | 0 |
| 13:00 | 0 | 0 | 1 | 3 |
| 13:15 | 0 | 0 | 1 | 3 |
| 13:30 | 0 | 0 | 2 | 3 |
| 13:45 | 0 | 18 | 1 | 2 |
| 14:00 | 0 | 18 | 1 | 3 |
| 14:15 | 0 | 0 | 1 | 3 |
| 14:30 | 0 | 0 | 1 | 3 |
| 14:45 | 0 | 37 | 1 | 3 |
| 15:00 | 0 | 38 | 1 | 0 |
| 15:15 | 0 | 22 | 2 | 0 |
| 15:30 | 0 | 23 | 1 | 0 |
| 15:45 | 0 | 0 | 1 | 0 |
| 16:00 | 27 | 0 | 1 | 0 |
| 16:15 | 27 | 0 | 1 | 0 |
| 16:30 | 0 | 0 | 1 | 0 |
| 16:45 | 0 | 0 | 2 | 0 |
| 17:00 | 0 | 0 | 0 | 0 |
| 17:15 | 0 | 0 | 1 | 0 |
| 17:30 | 18 | 0 | 0 | 0 |
| 17:45 | 18 | 0 | 1 | 0 |

Zistené zaťaženie - križovatka $K_2$
smerovanie dopravy pre rok 2019 + predikované zaťaženie od ČS PHM VOMS a LC Rakovo:

označenie dopravných prúdov pre okružnú križovatku $K_2$:
rameno 1 = od Martina
rameno 2 = od Logistického centra Rakovo
rameno 3 = od Turčianskych Teplíc
rameno 4 = od ČS PHM VOMS

- *ranná špička (7:45-8:45):*

| Dopravný prúd | Intenzita (voz/h) | | | | | |
|---|---|---|---|---|---|---|
| | OA | N | A | TN | M | B |
| **1-4** | 15 | 1 | 0 | 1 | 0 | 0 |
| **1-3** | 343 | 33 | 3 | 63 | 0 | 0 |
| **1-2** | 68 | 0 | 0 | 20 | 0 | 0 |
| **2-1** | 0 | 0 | 0 | 13 | 0 | 0 |
| **2-4** | 0 | 0 | 0 | 0 | 0 | 0 |
| **2-3** | 0 | 0 | 0 | 5 | 0 | 0 |
| **3-2** | 29 | 0 | 0 | 8 | 0 | 0 |
| **3-1** | 377 | 24 | 1 | 65 | 0 | 0 |
| **3-4** | 15 | 1 | 0 | 1 | 0 | 0 |
| **4-3** | 15 | 1 | 0 | 1 | 0 | 0 |
| **4-2** | 0 | 0 | 0 | 0 | 0 | 0 |
| **4-1** | 15 | 1 | 0 | 1 | 0 | 0 |

- *špička poobede (14:45-15:45):*

| Dopravný prúd | Intenzita (voz/h) | | | | | |
|---|---|---|---|---|---|---|
| | OA | N | A | TN | M | B |
| **1-4** | 15 | 1 | 0 | 1 | 0 | 0 |
| **1-3** | 391 | 10 | 5 | 56 | 7 | 0 |
| **1-2** | 0 | 0 | 0 | 4 | 0 | 0 |
| **2-1** | 84 | 0 | 0 | 2 | 0 | 0 |
| **2-4** | 0 | 0 | 0 | 0 | 0 | 0 |
| **2-3** | 36 | 0 | 0 | 1 | 0 | 0 |
| **3-2** | 0 | 0 | 0 | 2 | 0 | 0 |
| **3-1** | 372 | 17 | 3 | 49 | 1 | 2 |
| **3-4** | 15 | 1 | 0 | 1 | 0 | 0 |
| **4-3** | 15 | 1 | 0 | 1 | 0 | 0 |
| **4-2** | 0 | 0 | 0 | 0 | 0 | 0 |
| **4-1** | 15 | 1 | 0 | 1 | 0 | 0 |

# *4. DOPRAVNÁ PROGNÓZA*

Uvedenie navrhovaného Logistického centra Rakovo do prevádzky sa predpokladá v roku 2024. Z uvedeného dôvodu (a podľa požiadaviek STN) bude križovatka $K_2$ z hľadiska kapacity posúdená do výhľadového roku 2044.

Vzhľadom k charakteru dopravy križovatiek boli pre prognózu dopravy cesty I/65 použité výhľadové koeficienty podľa TP 070.

*Tabuľka č. 4.1*
*Výhľadové koeficienty dopravy na cestách I. tried pre VÚC Žilina*

| **Rok** | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|---|---|
| **Ľahké vozidlá** | 1,00 | 1,12 | 1,22 | 1,33 | 1,42 | 1,52 | 1,62 |
| **Ťažké vozidlá** | 1,00 | 1,07 | 1,15 | 1,21 | 1,28 | 1,33 | 1,38 |

koeficient rastu Ľ.V. 2019 - 2044 = 1,417
koeficient rastu Ť.V. 2019 - 2044 = 1,252

Predpokladané zaťaženie dopravou križovatky $K_2$ je v zmysle podkladov stanovené nasledovne:

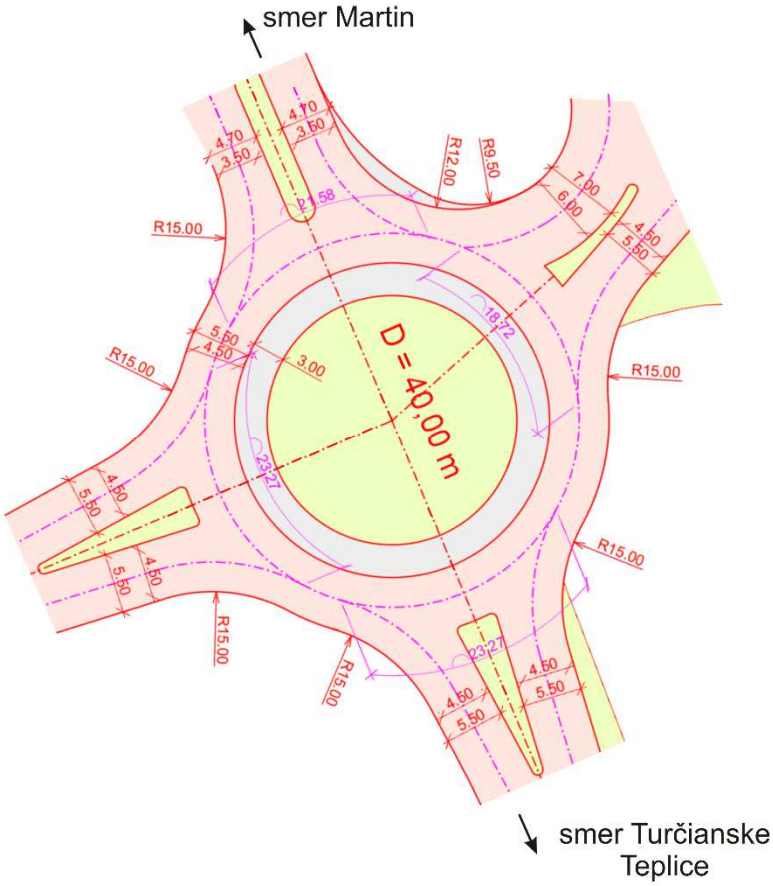
Dopravné zaťaženie pre rok 2044:

- *ranná špička (7:45-8:45):*

| Dopravný prúd | Intenzita (voz/h) | | | | | |
|---|---|---|---|---|---|---|
| | OA | N | A | TN | M | B |
| **1-4** | 15 | 1 | 0 | 1 | 0 | 0 |
| **1-3** | 486 | 41 | 4 | 79 | 0 | 0 |
| **1-2** | 68 | 0 | 0 | 20 | 0 | 0 |
| **2-1** | 0 | 0 | 0 | 13 | 0 | 0 |
| **2-4** | 0 | 0 | 0 | 0 | 0 | 0 |
| **2-3** | 0 | 0 | 0 | 5 | 0 | 0 |
| **3-2** | 29 | 0 | 0 | 8 | 0 | 0 |
| **3-1** | 534 | 30 | 1 | 81 | 0 | 0 |
| **3-4** | 15 | 1 | 0 | 1 | 0 | 0 |
| **4-3** | 15 | 1 | 0 | 1 | 0 | 0 |
| **4-2** | 0 | 0 | 0 | 0 | 0 | 0 |
| **4-1** | 15 | 1 | 0 | 1 | 0 | 0 |

- *špička poobede (14:45-15:45):*

| Dopravný prúd | Intenzita (voz/h) | | | | | |
|---|---|---|---|---|---|---|
| | OA | N | A | TN | M | B |
| **1-4** | 15 | 1 | 0 | 1 | 0 | 0 |
| **1-3** | 554 | 13 | 6 | 70 | 10 | 0 |
| **1-2** | 0 | 0 | 0 | 4 | 0 | 0 |
| **2-1** | 84 | 0 | 0 | 2 | 0 | 0 |
| **2-4** | 0 | 0 | 0 | 0 | 0 | 0 |
| **2-3** | 36 | 0 | 0 | 1 | 0 | 0 |
| **3-2** | 0 | 0 | 0 | 2 | 0 | 0 |
| **3-1** | 527 | 21 | 4 | 61 | 1 | 3 |
| **3-4** | 15 | 1 | 0 | 1 | 0 | 0 |
| **4-3** | 15 | 1 | 0 | 1 | 0 | 0 |
| **4-2** | 0 | 0 | 0 | 0 | 0 | 0 |
| **4-1** | 15 | 1 | 0 | 1 | 0 | 0 |




*Obrázok č. 4*
*detail - križovatka ($K_2$) s vyznačením základných parametrov, ktoré vstupujú do kapacitného posúdenia*

# *5. KAPACITNÝ VÝPOČET VÝKONNOSTI KRIŽOVATKY*

Kapacitný výpočet výkonnosti predmetnej križovatky bol vykonaný v súlade s TP102.

*Posúdenie - výpočtové formuláre - rok 2044 ráno:*

Vstupné parametre

| Rameno | Názov komunikácie | Požadovaný stupeň kvality dopravy *QSV* | Priemerný čas čakania *w (s)* |
|---|---|---|---|
| 1 | I/65 - od Martina | E | <= 60 |
| 2 | Logistické centrum Rakovo | E | <= 60 |
| 3 | I/66 - od Turč. Teplíc | E | <= 60 |
| 4 | ČSPH Voms | E | <= 60 |

Geometrické podmienky

| Rameno | Počet pruhov | | | Polomer | | Vzdialenosť *b* | Dĺžka priechodu na výjazde $L_{ch}$ | Dĺžka pruhu $L_p$ | Spojovacia vetva OK | |
|---|---|---|---|---|---|---|---|---|---|---|
| | vjazd $n_i$ | okruh $n_k$ | výjazd $n_e$ | vjazd $r_i$ | výjazd $r_e$ | | | | Odpojenie $L_{SP}$ | Typ |
| | *1 / 2* | *1 / 2* | *1 / 2* | *(m)* | *(m)* | *(m)* | *(m)* | *(m)* | *(m)* | *1 / 2 / 3* |
| 1 | 1 | 1 | 1 | 15 | 12 | 21,58 | - | - | - | - |
| 2 | 1 | 1 | 1 | 15 | 15 | 23,27 | - | - | - | - |
| 3 | 1 | 1 | 1 | 15 | 15 | 23,27 | - | - | - | - |
| 4 | 1 | 1 | 1 | 9,5 | 15 | 18,72 | - | - | - | - |

Matica smerovania dopravných prúdov (j.v./h)

| Rameno | 1 | 2 | 3 | 4 | Spolu | Intenzita chodcov $q_{ch}$ |
|---|---|---|---|---|---|---|
| | | | | | | *(ch/h)* |
| 1 | | 118 | 751 | 19 | 888 | - |
| 2 | 32,5 | | 12,5 | 0 | 45 | - |
| 3 | 783 | 49 | | 19 | 851 | - |
| 4 | 19 | 0 | 19 | | 38 | - |
| Spolu | 834,5 | 167 | 782,5 | 38 | 1822 | |

Kapacita pruhov na vjazde

| Rameno | Konfigurácia pruhov na vjazde | Intenzita na vjazde $q_i$ | Intenzia na okruhu $q_k$ | Základná kapacita $G_i$ | Vplyv chodcov $f_f$ | Kapacita $C_i$ |
|---|---|---|---|---|---|---|
| | *1/1, 1/2, L/2, P/2* | *(j.v./h)* | *(j.v./h)* | *(j.v./h)* | *(-)* | *(j.v./h)* |
| 1 | 1/1 | 888 | 68 | 1294,3 | 1 | 1294,3 |
| 2 | 1/1 | 45 | 789 | 703,3 | 1 | 703,3 |
| 3 | 1/1 | 851 | 51,5 | 1308,3 | 1 | 1308,3 |
| 4 | 1/1 | 38 | 864,5 | 576,1 | 1 | 576,1 |

Posúdenie kapacity vjazdu

| Rameno | Rezerva kapacity $R_i$ | Stupeň saturácie $g_i$ | Dĺžka kolón $N_{95}$ | Porovnanie $N_{95}$ s dĺžkou pruhu | Priemerny čas čakania $w_i$ | Stupeň kvality *QSV* |
|---|---|---|---|---|---|---|
| | *(j.v./h)* | *(-)* | *(m)* | *(m)* | *(s)* | *(-)* |
| 1 | 406,3 | 0,69 | 38,1 | - | 8,8 | A |
| 2 | 658,3 | 0,06 | 1,2 | - | 5,5 | A |
| 3 | 457,3 | 0,65 | 32,7 | - | 7,8 | A |
| 4 | 538,1 | 0,07 | 1,3 | - | 6,7 | A |
| Stanovený stupeň kvality pre okružnú križovatku | | | | | | A |

Posúdenie kapacity výjazdu

| Rameno | Intenzita na výjazde $q_e$ | Intenzita chodcov $q_{ch}$ | Kapacita výjazdu $C_e$ | Stupeň saturácie $g_e$ | Porovnanie s požadovaným $g_e$ | Posúdenie výjazdu |
|---|---|---|---|---|---|---|
| | *(j.v./h)* | *(ch/h)* | *(j.v./h)* | *(-)* | *(-)* | *V/N* |
| 1 | 834,5 | | | | | V |
| 2 | 167 | | | | | V |
| 3 | 782,5 | | | | | V |
| 4 | 38 | | | | | V |
| Kvalita dopravy na výjazdoch vyhovuje? | | | | | | V |

Posúdenie kapacity spojovacej vetvy OK

| Rameno | Intenzita na spojovacej vetve $q_{SP}$ | Vzdialenosť odpojenia $L_{SP}$ | Porovnanie $N_{95}$ s $L_{SP}$ | Kapacita spojovacej vetvy $C_{SP}$ | Stupeň saturácie $g_{SP}$ | Posúdenie spojovacej vety |
|---|---|---|---|---|---|---|
| | *(j.v./h)* | *(m)* | *(m)* | *(j.v./h)* | *(-)* | *V / N* |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| Kvalita dopravy na spojovacích vetvách OK vyhovuje? | | | | | | |

*Posúdenie - výpočtové formuláre - rok 2044 poobede:*

Vstupné parametre

| Rameno | Názov komunikácie | Požadovaný stupeň kvality dopravy *QSV* | Priemerný čas čakania *w (s)* |
|---|---|---|---|
| 1 | I/65 - od MartinaA | E | <= 60 |
| 2 | Logistické centrum Rakovo | E | <= 60 |
| 3 | I/66 - od Turč. Teplíc | E | <= 60 |
| 4 | ČSPH Voms | E | <= 60 |

Geometrické podmienky

| Rameno | Počet pruhov | | | Polomer | | Vzdialenosť *b* | Dĺžka priechodu na výjazde $L_{ch}$ | Dĺžka pruhu $L_p$ | Spojovacia vetva OK | |
|---|---|---|---|---|---|---|---|---|---|---|
| | vjazd $n_i$ | okruh $n_k$ | výjazd $n_e$ | vjazd $r_i$ | výjazd $r_e$ | | | | Odpojenie $L_{SP}$ | Typ |
| | *1 / 2* | *1 / 2* | *1 / 2* | *(m)* | *(m)* | *(m)* | *(m)* | *(m)* | *(m)* | *1 / 2 / 3* |
| 1 | 1 | 1 | 1 | 15 | 12 | 21,58 | - | - | - | - |
| 2 | 1 | 1 | 1 | 15 | 15 | 23,27 | - | - | - | - |
| 3 | 1 | 1 | 1 | 15 | 15 | 23,27 | - | - | - | - |
| 4 | 1 | 1 | 1 | 9,5 | 15 | 18,72 | - | - | - | - |

Matica smerovania dopravných prúdov (j.v./h)

| Rameno | 1 | 2 | 3 | 4 | Spolu | Intenzita chodcov $q_{ch}$ |
|---|---|---|---|---|---|---|
| | | | | | | *(ch/h)* |
| 1 | | 10 | 767,5 | 19 | 796,5 | - |
| 2 | 89 | | 38,5 | 0 | 127,5 | - |
| 3 | 719,5 | 5 | | 19 | 743,5 | - |
| 4 | 19 | 0 | 19 | | 38 | - |
| Spolu | 827,5 | 15 | 825 | 38 | 1705,5 | |

Kapacita pruhov na vjazde

| Rameno | Konfigurácia pruhov na vjazde | Intenzita na vjazde $q_i$ | Intenzia na okruhu $q_k$ | Základná kapacita $G_i$ | Vplyv chodcov $f_f$ | Kapacita $C_i$ |
|---|---|---|---|---|---|---|
| | *1/1, 1/2, L/2, P/2* | *(j.v./h)* | *(j.v./h)* | *(j.v./h)* | *(-)* | *(j.v./h)* |
| 1 | 1/1 | 796,5 | 24 | 1331,7 | 1 | 1331,7 |
| 2 | 1/1 | 127,5 | 805,5 | 690,2 | 1 | 690,2 |
| 3 | 1/1 | 743,5 | 108 | 1260,5 | 1 | 1260,5 |
| 4 | 1/1 | 38 | 813,5 | 611,7 | 1 | 611,7 |

Posúdenie kapacity vjazdu

| Rameno | Rezerva kapacity $R_i$ | Stupeň saturácie $g_i$ | Dĺžka kolón $N_{95}$ | Porovnanie $N_{95}$ s dĺžkou pruhu | Priemerny čas čakania $w_i$ | Stupeň kvality *QSV* |
|---|---|---|---|---|---|---|
| | *(j.v./h)* | *(-)* | *(m)* | *(m)* | *(s)* | *(-)* |
| 1 | 535,2 | 0,60 | 26,3 | - | 6,7 | A |
| 2 | 562,7 | 0,18 | 4,1 | - | 6,4 | A |
| 3 | 517,0 | 0,59 | 25,4 | - | 6,9 | A |
| 4 | 573,7 | 0,06 | 1,2 | - | 6,3 | A |
| Stanovený stupeň kvality pre okružnú križovatku | | | | | | A |

Posúdenie kapacity výjazdu

| Rameno | Intenzita na výjazde $q_e$ | Intenzita chodcov $q_{ch}$ | Kapacita výjazdu $C_e$ | Stupeň saturácie $g_e$ | Porovnanie s požadovaným $g_e$ | Posúdenie výjazdu |
|---|---|---|---|---|---|---|
| | *(j.v./h)* | *(ch/h)* | *(j.v./h)* | *(-)* | *(-)* | *V/N* |
| 1 | 827,5 | | | | | V |
| 2 | 15 | | | | | V |
| 3 | 825 | | | | | V |
| 4 | 38 | | | | | V |
| Kvalita dopravy na výjazdoch vyhovuje? | | | | | | V |

Posúdenie kapacity spojovacej vetvy OK

| Rameno | Intenzita na spojovacej vetve $q_{SP}$ | Vzdialenosť odpojenia $L_{SP}$ | Porovnanie $N_{95}$ s $L_{SP}$ | Kapacita spojovacej vetvy $C_{SP}$ | Stupeň saturácie $g_{SP}$ | Posúdenie spojovacej vety |
|---|---|---|---|---|---|---|
| | *(j.v./h)* | *(m)* | *(m)* | *(j.v./h)* | *(-)* | *V / N* |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| Kvalita dopravy na spojovacích vetvách OK vyhovuje? | | | | | | |

## *6. ZÁVER*

Posudzovaná navrhovaná okružná križovatka $K_2$, na štátnej ceste I/65 **budú kapacitne vyhovovať celé posudzované obdobie** v tomto území aj vrátane zvýšenej dopravy kvôli Logistickému centru Rakovo ako aj ČS PHM VOMS - t. j. minimálne do roku 2044.

**Vypracoval: Ing. Róbert Gavula**