

## BAB VI

### KESIMPULAN DAN SARAN

#### 6.1 Kesimpulan

Berdasarkan analisis data simpang bersinyal menggunakan metode MKJI 1997 dan hasil perencanaan menggunakan teori maksimasi *green bandwidth* pada simpang empat bersinyal Wirobrajan dan simpang Ngabean, kota Yogyakarta yang dilakukan pada tanggalanggal 4, 5, 10 November 2020, didapatkan kesimpulan sebagai berikut.

1. Kondisi eksisting untuk pengaturan waktu sinyal pada simpang empat Wirobrajan dan simpang empat Ngabean sebelumnya belum terkoordinasi. Hal tersebut terlihat dengan perbedaan panjang waktu siklus, dimana pada simpang empat Wirobrajan mempunyai panjang waktu siklus 202 detik sedangkan untuk simpang empat Ngabean memiliki panjang waktu siklus 124 detik.
2. Waktu siklus yang memiliki kinerja optimum terbaik sebesar 163 detik. Dengan menggunakan teori diagram maksimasi *green bandwidth* diperoleh waktu *offset* optimum dari arah Barat ke Timur sebesar 24 detik dengan kecepatan 30 km/jam.
3. Perbandingan kondisi eksisting dengan kondisi perencanaan koordinasi sinyal antar simpang. Nilai kinerja simpang empat Wirobrajan dan simpang empat Ngabean dengan nilai rata-rata pada arus utama yang dikoordinasikan berupa derajat kejenuhan (DS) sebesar 0,94, panjang antrian (QL) sebesar

291.5 meter, dan tundaan sebesar 120 detik. Sedangkan setelah dilakukan perencanaan koordinasi antar simpang memiliki nilai rata-rata untuk derajat kejenuhan (DS) memiliki nilai sebesar 0,88, panjang antrian (QL) 238 meter, dan tundaan sebesar 79.68 detik pada arus utama yang dikoordinasikan.

## 6.2 Saran

Berdasarkan kesimpulan dari analisis dengan metode MKJI 1997 dan hasil perhitungan perbaikan *traffic light* dengan menggunakan teori maksimasi *green bandwidth*. Terdapat beberapa saran yang dapat penyusun sampaikan sebagai berikut.

1. Permasalahan yang terjadi dalam mengkoordinasi sinyal antar simpang pada ruas Jalan R.E. Martadinata terjadi pada simpang empat Wirobrajan yang memiliki kinerja paling jenuh dibandingkan dengan simpang empat Ngabean, terutama untuk pendekat Barat. Perlunya dilakukan manajemen lalu lintas pada simpang empat Wirobrajan.
2. Dari analisis pada kasus simpang empat Wirobrajan dan simpang empat Ngabean, besarnya jumlah kendaraan tidak mampu untuk ditampung kapasitas simpang. Dengan berjalannya waktu jumlah kendaraan akan meningkat, sedangkan kapasitas jalan tidak mungkin untuk ditambah. Maka perlu kebijakan serius dan tegas oleh pemerintah dalam menekan pertumbuhan jumlah kendaraan. Tentunya hal ini diiringi dengan penyediaan moda angkutan umum yang memadai.

## DAFTAR PUSTAKA

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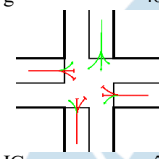
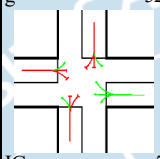
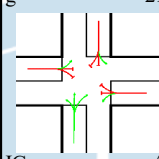
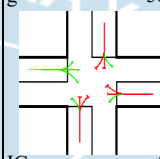
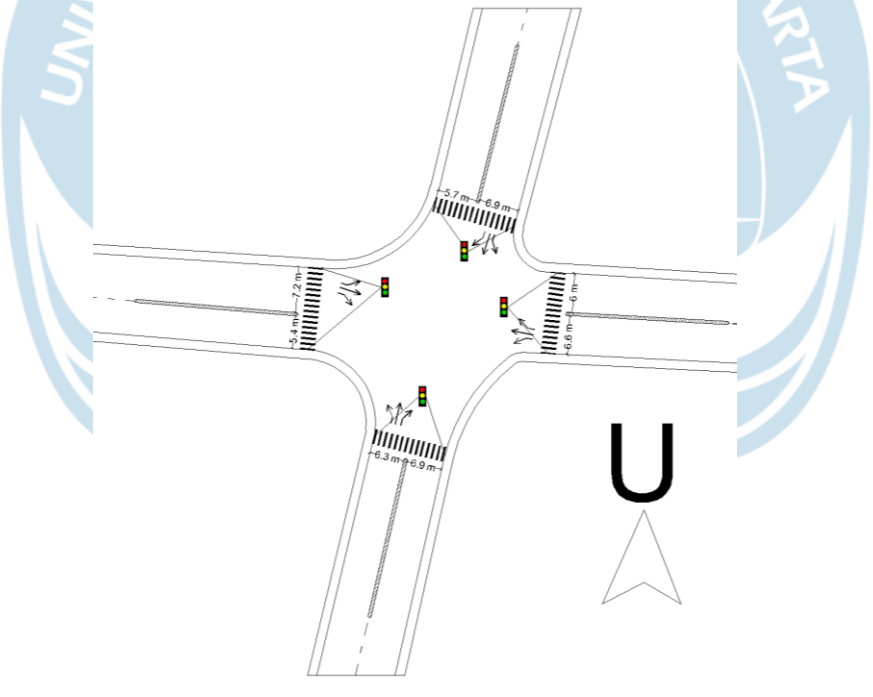
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## LAMPIRAN

### Formulir SIG- I Jam Puncak Pagi Simpang Wirobrajan

| Lampiran 1. Data Kondisi Lapangan                                                   |                                                                                   | Tanggal :                                                                         | Ditangani oleh : Krisnandio S.P.                                                   |                  |                              |                               |                         |                          |                                       |                            |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------|------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                                                                   |                                                                                   |                                                                                   |                                                                                    |                  |                              |                               |                         |                          |                                       |                            |
| Formulir SIG-I                                                                      |                                                                                   | Ukuran kota : 431.939 Jiwa                                                        |                                                                                    |                  |                              |                               |                         |                          |                                       |                            |
| GEOMETRI                                                                            |                                                                                   | Ukuran kota : Jiwa                                                                |                                                                                    |                  |                              |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS                                                              |                                                                                   | Perihal : 4 Fase                                                                  |                                                                                    |                  |                              |                               |                         |                          |                                       |                            |
| LINGKUNGAN                                                                          |                                                                                   | Periode : Jam Puncak Pagi                                                         |                                                                                    |                  |                              |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA                                                                |                                                                                   |                                                                                   |                                                                                    |                  |                              |                               |                         |                          |                                       |                            |
| g = 46                                                                              | g = 52                                                                            | g = 21                                                                            | g = 50                                                                             |                  |                              |                               |                         |                          |                                       |                            |
|    |  |  |  |                  |                              |                               |                         |                          |                                       |                            |
| IG = 5                                                                              | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                             |                  |                              |                               |                         |                          |                                       |                            |
|                                                                                     |                                                                                   |                                                                                   | Waktu siklus:<br>c = 189                                                           |                  |                              |                               |                         |                          |                                       |                            |
|                                                                                     |                                                                                   |                                                                                   | Waktu hilang<br>total :<br>LTI = 20                                                |                  |                              |                               |                         |                          |                                       |                            |
|  |                                                                                   |                                                                                   |                                                                                    |                  |                              |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                                                                    |                                                                                   |                                                                                   |                                                                                    |                  |                              |                               |                         |                          |                                       |                            |
| Kode pendekat                                                                       | Tipe lingkungan jalan                                                             | Hambatan samping Tinggi / Rendah                                                  | Median Ya/Tidak                                                                    | Kelandaian +/- % | Belok kiri langsung Ya/Tidak | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                                                                     |                                                                                   |                                                                                   |                                                                                    |                  |                              |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                  |                  | Y                            | 0                             | 6.9                     | 4                        | 2.9                                   | 5.7                        |
| T                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                  |                  | Y                            | 0                             | 6.6                     | 3.6                      | 3                                     | 6                          |
| S                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                  |                  | Y                            | 0                             | 6.3                     | 3.6                      | 2.7                                   | 6.9                        |
| B                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                  |                  | Y                            | 0                             | 7.2                     | 4.8                      | 2.4                                   | 5.4                        |

## Formulir SIG- II Jam Puncak Pagi Simpang Wirobrajan

| SIMPANG BERSINYAL |      |                       | Tanggal :                                |                      | Ditangani oleh : Krisnandio S P |                      |           |                                             |                         |                |          |                         |                                             |          |
|-------------------|------|-----------------------|------------------------------------------|----------------------|---------------------------------|----------------------|-----------|---------------------------------------------|-------------------------|----------------|----------|-------------------------|---------------------------------------------|----------|
| Formulir SIG-II   |      |                       | Kota : Yogyakarta                        |                      | Perihal : 4 Fase                |                      |           |                                             |                         |                |          |                         |                                             |          |
| ARUS LALU LINTAS  |      |                       | Ukuran kota : 431.939 Jiwa               |                      | Periode : Jam Puncak Pagi       |                      |           |                                             |                         |                |          |                         |                                             |          |
|                   |      |                       | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |                      |                                 |                      |           |                                             | KEND. TAK BERMOTOR (UM) |                |          |                         |                                             |          |
| Kode Pendekat     | Arah | Kendaraan Ringan (LV) |                                          | Kendaraan Berat (HV) |                                 | Sepeda Motor (MC)    |           | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |                         | Rasio Berbelok |          | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |          |
|                   |      | kend/jam              | smp / jam                                | kend/jam             | smp / jam                       | kend/jam             | smp / jam | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |                         | Rasio Berbelok |          |                         |                                             |          |
|                   |      |                       |                                          |                      |                                 |                      |           | terlindung                                  | terlawan                | terlindung     | terlawan | terlindung              |                                             | terlawan |
|                   |      | emp terlindung = 1,0  |                                          | emp terlindung = 1,3 |                                 | emp terlindung = 0,2 |           |                                             |                         |                |          |                         |                                             |          |
|                   |      | emp terlawan = 1,0    |                                          | emp terlawan = 1,3   |                                 | emp terlawan = 0,4   |           |                                             |                         |                |          |                         |                                             |          |
|                   |      |                       | kend/jam                                 |                      | smp / jam                       |                      | kend/jam  |                                             | smp / jam               |                |          |                         |                                             |          |
|                   |      |                       | terlindung                               |                      | terlindung                      |                      | terlawan  |                                             | terlindung              |                | terlawan |                         |                                             |          |
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## Formulir SIG- III Jam Puncak Pagi Simpang Wirobrajan

|                                                 |    |                                                                       |             |                       |             |                   |
|-------------------------------------------------|----|-----------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|
| SIMPANG BERSINYAL                               |    | Tanggal                                                               |             | : 20 November 2020    |             |                   |
| Formulir SIG-III                                |    | Ditangani Oleh                                                        |             | : Krisnandio          |             |                   |
| <b>WAKTU ANTAR HIJAU</b><br><b>WAKTU HILANG</b> |    | Kota                                                                  |             | : Yogyakarta          |             |                   |
|                                                 |    | Simpang                                                               |             | : Wirobrajan          |             |                   |
|                                                 |    | Perihal                                                               |             | : 4 - Fase hijau awal |             |                   |
| Berangkat                                       |    | Lalu Lintas Datang                                                    |             |                       |             | Waktu Merah Semua |
| Kode                                            | VE | Kode                                                                  | Utara       | Timur                 | Selatan     | Barat             |
|                                                 |    | VA                                                                    | 10          | 10                    | 10          | 10                |
| Utara                                           | 10 | Jarak Berangkat - Datang (m)                                          |             | 22+5-17               |             |                   |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             | 2.2+0.5-1.7           |             | 1                 |
| Timur                                           | 10 | Jarak Berangkat - Datang (m)                                          |             |                       | 24+5-21     |                   |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             |                       | 2.4+0.5-2.1 | 0.8               |
| Selatan                                         | 10 | Jarak Berangkat - Datang (m)                                          |             |                       |             | 29+5-22           |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             |                       |             | 2.9+0.5-2.2       |
| Barat                                           | 10 | Jarak Berangkat - Datang (m)                                          | 29+5-15     |                       |             |                   |
|                                                 |    | Waktu Berangkat - Datang (det)                                        | 2.9+0.5-1.5 |                       |             | 1.9               |
|                                                 |    | Penentuan Waktu Merah Semua                                           |             |                       |             |                   |
|                                                 |    | Fase 1                                                                | →           | Fase 2                |             | 2                 |
|                                                 |    | Fase 2                                                                | →           | Fase 3                |             | 2                 |
|                                                 |    | Fase 3                                                                | →           | Fase 4                |             | 2                 |
|                                                 |    | Fase 4                                                                | →           | Fase 1                |             | 2                 |
|                                                 |    | Waktu Kuning Total                                                    |             |                       |             |                   |
|                                                 |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             |                   |
|                                                 |    | 12                                                                    |             |                       |             |                   |
|                                                 |    | 20                                                                    |             |                       |             |                   |

## Formulir SIG- IV Jam Puncak Pagi Simpang Wirobrajan

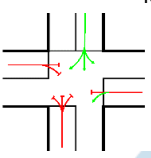
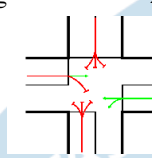
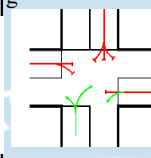
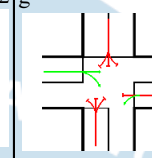
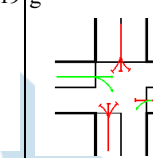
| SIMPANG BERSINYAL                        |                      |               |                                 | Tanggal :                            |                   | Ditangani oleh : KSP             |                           |                           |                            |      |      |                                 |      |                        |                          |                 |                 |                   |                       |                        |                     |       |     |      |
|------------------------------------------|----------------------|---------------|---------------------------------|--------------------------------------|-------------------|----------------------------------|---------------------------|---------------------------|----------------------------|------|------|---------------------------------|------|------------------------|--------------------------|-----------------|-----------------|-------------------|-----------------------|------------------------|---------------------|-------|-----|------|
| Formulir SIG-IV                          |                      |               |                                 | Kota : Yogyakarta                    |                   | Perihal : 4 Fase                 |                           |                           |                            |      |      |                                 |      |                        |                          |                 |                 |                   |                       |                        |                     |       |     |      |
| PENENTUAN WAKTU SINYAL                   |                      |               |                                 | Simpang : Simpang 4 Wirobrajan       |                   | Periode : Jam Puncak Pagi        |                           |                           |                            |      |      |                                 |      |                        |                          |                 |                 |                   |                       |                        |                     |       |     |      |
| KAPASITAS                                |                      |               |                                 |                                      |                   |                                  |                           |                           |                            |      |      |                                 |      |                        |                          |                 |                 |                   |                       |                        |                     |       |     |      |
| Distribusi arus lalu lintas<br>(smp/jam) |                      | Fase 1        |                                 | Fase 2                               |                   | Fase 3                           |                           |                           |                            |      |      |                                 |      |                        |                          |                 |                 |                   |                       |                        |                     |       |     |      |
| U ↑                                      |                      |               |                                 |                                      |                   | Fase 4                           |                           |                           |                            |      |      |                                 |      |                        |                          |                 |                 |                   |                       |                        |                     |       |     |      |
| Kode Pendekat                            | Hijau dalam fase no. | Tipe pendekat | Rasio kendaraan berbelok        |                                      | Arus RT (smp/jam) |                                  | Lebar efektif (m)         |                           | Arus jenuh (smp/jam hijau) |      |      |                                 |      |                        | Arus lalu lintas smp/jam | Rasio Arus (FR) | Rasio fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |                     |       |     |      |
|                                          |                      |               | P <sub>L</sub> T <sub>O</sub> R | P <sub>L</sub> T                     | Arah diri         | Arah lawan                       | Nilai dasar smp/jam hijau | Faktor-faktor penyesuaian |                            |      |      | Nilai disesuaikan smp/jam hijau | Q    | Fr <sub>crit</sub> IFR |                          |                 |                 |                   |                       |                        | S x g/c             | Q / C |     |      |
| U                                        | 1                    | P             | 0.34                            | 0.35                                 |                   |                                  | 6.9                       | 4140                      | F <sub>cs</sub>            | 0.83 | 0.94 | 1.00                            | 1.00 | 1.00                   | 1.00                     | 1.00            | 0.95            | 3318              | 389                   | 0.117                  | 0.163               | 46    | 807 | 0.48 |
| T                                        | 2                    | P             |                                 | 0.12                                 | 0.56              |                                  |                           | 6.6                       | 3960                       |      | 0.83 | 0.94                            | 1.00 | 1.00                   | 1.00                     | 1.00            | 0.98            | 3458              | 812                   | 0.235                  | 0.326               | 52    | 952 | 0.85 |
| S                                        | 3                    | P             |                                 | 0.36                                 | 0.12              |                                  |                           | 6.3                       | 3780                       |      | 0.83 | 0.94                            | 1.00 | 1.00                   | 1.00                     | 1.00            | 0.94            | 2854              | 345                   | 0.121                  | 0.168               | 21    | 317 | 1.09 |
| B                                        | 4                    | P             |                                 | 0.43                                 | 0.11              |                                  |                           | 7.2                       | 4320                       |      | 0.83 | 0.94                            | 1.00 | 1.00                   | 1.00                     | 1.00            | 0.93            | 3209              | 794                   | 0.247                  | 0.343               | 50    | 849 | 0.93 |
| Waktu hilang total LTI (det)             |                      |               | 20                              | Waktu siklus pra penyesuaian c (det) |                   | Waktu siklus disesuaikan c (det) |                           | 189                       |                            |      |      |                                 |      |                        |                          |                 |                 |                   | IFR = 0.720           |                        | ΣFR <sub>crit</sub> |       |     |      |

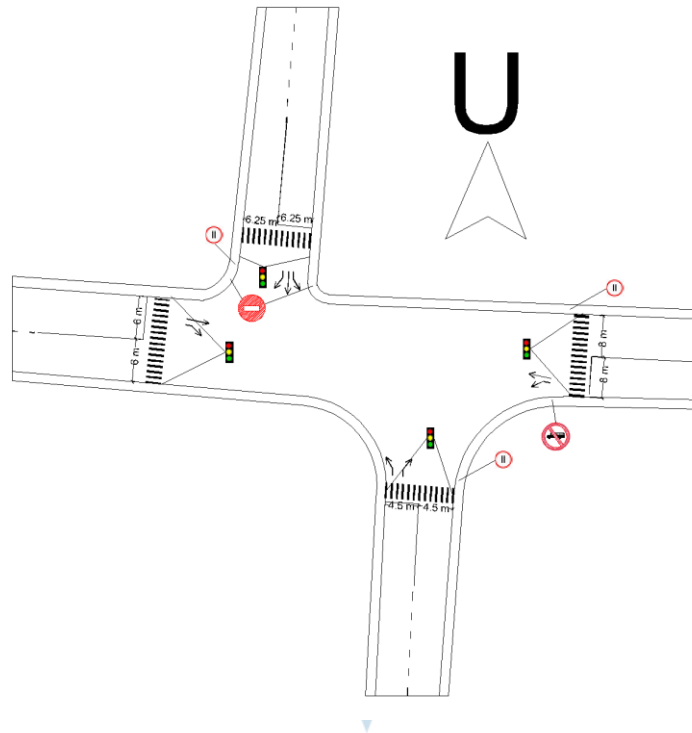


### Formulir SIG- I Jam Puncak Pagi Simpang Ngabean

|                                   |                             |                                  |
|-----------------------------------|-----------------------------|----------------------------------|
| Lampiran 1. Data Kondisi Lapangan | Tanggal :                   | Ditangani oleh : Krisnandio S.P. |
| SIMPANG BERSINYAL                 |                             |                                  |
| Formulir SIG-I                    | Simpang : Simpang 4 Ngabean |                                  |
| GEOMETRI                          | Ukuran kota : 431.939 Jiwa  |                                  |
| PENGATURAN LALU LINTAS            | Perihal : 4 Fase            |                                  |
| LINGKUNGAN                        | Periode : Jam Puncak Sore   |                                  |

#### FASE SINYAL YANG ADA

|                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                          |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------|
| g = 46                                                                            | g = 23                                                                            | g = 22                                                                            | g = 19                                                                             | g = 27                                                                              | Waktu siklus:<br>c = 130 |
|  |  |  |  |  | Waktu hilang<br>total :  |
| IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                             | IG = 5                                                                              | LTI = 5                  |



#### KONDISI LAPANGAN

| Kode pendekat | Tipe lingkungan jalan | Hambatan samping Tinggi / Rendah | Median Ya/Tidak | Kelandaian +/- % | Belok kiri langsung Ya/Tidak | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|---------------|-----------------------|----------------------------------|-----------------|------------------|------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
|               |                       |                                  |                 |                  |                              |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U             | COM                   | Tinggi                           | T               |                  | T                            | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T             | COM                   | Tinggi                           | T               |                  | Y                            | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S             | COM                   | Tinggi                           | T               |                  | T                            | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B             | COM                   | Tinggi                           | T               |                  | T                            | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST           | COM                   | Tinggi                           | T               |                  | T                            | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |

## Formulir SIG- II Jam Puncak Pagi Simpang Ngabean

| SIMPANG BERSINYAL |       |                                            | Tanggal :                                |                                            | Ditangani oleh : Krisnandio S P |                                            |      |                                  |      |                                             |      |       |      |                |                         |                         |                                               |
|-------------------|-------|--------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|--------------------------------------------|------|----------------------------------|------|---------------------------------------------|------|-------|------|----------------|-------------------------|-------------------------|-----------------------------------------------|
| Formulir SIG-II   |       |                                            | Kota : Yogyakarta                        |                                            | Perihal : 4 Fase                |                                            |      |                                  |      |                                             |      |       |      |                |                         |                         |                                               |
| ARUS LALU LINTAS  |       |                                            | Simpang : Simpang 4 Ngabean              |                                            | Periode : Jam Puncak Pagi       |                                            |      |                                  |      |                                             |      |       |      |                |                         |                         |                                               |
|                   |       |                                            | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |                                            |                                 |                                            |      |                                  |      |                                             |      |       |      |                | KEND. TAK BERMOTOR (UM) |                         |                                               |
| Kode Pendekat     | Arah  | Kendaraan Ringan (LV)                      |                                          | Kendaraan Berat (HV)                       |                                 | Sepeda Motor (MC)                          |      |                                  |      | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |      |       |      | Rasio Berbelok |                         | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) / (Q <sub>MV</sub> ) |
|                   |       | emp terlindung = 1,0<br>emp terlawan = 1,0 |                                          | emp terlindung = 1,3<br>emp terlawan = 1,3 |                                 | emp terlindung = 0,2<br>emp terlawan = 0,4 |      | snp / jam<br>terlindung terlawan |      | snp / jam<br>terlindung terlawan            |      | PLTOR |      | PRT            | kend / jam              |                         |                                               |
|                   |       |                                            |                                          |                                            |                                 |                                            |      |                                  |      |                                             |      |       |      |                |                         |                         |                                               |
|                   |       |                                            |                                          |                                            |                                 |                                            |      |                                  |      |                                             |      |       |      |                |                         |                         |                                               |
|                   |       |                                            |                                          |                                            |                                 |                                            |      |                                  |      |                                             |      |       |      |                |                         |                         |                                               |
| U                 | LT    | 195                                        | 195                                      | 4                                          | 5                               | 5                                          | 1049 | 210                              | 420  | 1248                                        | 410  | 620   | 0.31 |                | 4                       |                         |                                               |
|                   | ST    | 167                                        | 167                                      | 7                                          | 9                               | 9                                          | 1293 | 259                              | 517  | 1467                                        | 435  | 693   |      |                | 7                       |                         |                                               |
|                   | RT    | 175                                        | 175                                      | 7                                          | 9                               | 9                                          | 1364 | 273                              | 546  | 1546                                        | 457  | 730   |      | 0.35           | 12                      |                         |                                               |
|                   | Total | 537                                        | 537                                      | 18                                         | 23                              | 23                                         | 3706 | 741                              | 1482 | 4261                                        | 1302 | 2043  | 0.31 | 0.35           | 23                      | 0.01                    |                                               |
| T                 | LT    | 10                                         | 10                                       | 10                                         | 13                              | 13                                         | 140  | 28                               | 56   | 160                                         | 51   | 79    | 0.13 |                | 8                       |                         |                                               |
|                   | ST    | 111                                        | 111                                      | 11                                         | 14                              | 14                                         | 1133 | 227                              | 453  | 1255                                        | 352  | 579   |      |                | 7                       |                         |                                               |
|                   | RT    | 0                                          | 0                                        |                                            | 0                               | 0                                          |      | 0                                | 0    | 0                                           | 0    | 0     |      | 0.00           |                         |                         |                                               |
|                   | Total | 121                                        | 121                                      | 21                                         | 27                              | 27                                         | 1273 | 255                              | 509  | 1415                                        | 403  | 658   | 0.13 | 0.00           | 15                      | 0.01                    |                                               |
| S                 | LT    | 90                                         | 90                                       | 14                                         | 18                              | 18                                         | 823  | 165                              | 329  | 927                                         | 273  | 437   | 0.62 |                | 10                      |                         |                                               |
|                   | ST    | 0                                          | 0                                        |                                            | 0                               | 0                                          |      | 0                                | 0    | 0                                           | 0    | 0     |      |                | 0                       |                         |                                               |
|                   | RT    | 63                                         | 63                                       | 11                                         | 14                              | 14                                         | 465  | 93                               | 186  | 539                                         | 170  | 263   |      | 0.38           | 14                      |                         |                                               |
|                   | Total | 153                                        | 153                                      | 25                                         | 33                              | 33                                         | 1288 | 258                              | 515  | 1466                                        | 443  | 701   | 0.62 | 0.38           | 24                      | 0.02                    |                                               |
| BRT               | LT    | 0                                          | 0                                        | 0                                          | 0                               | 0                                          |      | 0                                | 0    | 0                                           | 0    | 0     | 0.00 |                |                         |                         |                                               |
|                   | ST    | 0                                          | 0                                        | 0                                          | 0                               | 0                                          |      | 0                                | 0    | 0                                           | 0    | 0     |      |                |                         |                         |                                               |
|                   | RT    | 27                                         | 27                                       | 1                                          | 1                               | 1                                          | 476  | 95                               | 190  | 504                                         | 124  | 219   |      | 1.00           | 5                       |                         |                                               |
|                   | Total | 27                                         | 27                                       | 1                                          | 1                               | 1                                          | 476  | 95                               | 190  | 504                                         | 124  | 219   | 0.00 | 1.00           | 5                       | 0.01                    |                                               |
| BST               | LT    | 0                                          | 0                                        | 0                                          | 0                               | 0                                          |      | 0                                | 0    | 0                                           | 0    | 0     | 0.00 |                |                         |                         |                                               |
|                   | ST    | 277                                        | 277                                      | 6                                          | 8                               | 8                                          | 2247 | 449                              | 899  | 2530                                        | 734  | 1184  |      |                | 19                      |                         |                                               |
|                   | RT    | 0                                          | 0                                        | 0                                          | 0                               | 0                                          |      | 0                                | 0    | 0                                           | 0    | 0     |      | 0.00           |                         |                         |                                               |
|                   | Total | 277                                        | 277                                      | 6                                          | 8                               | 8                                          | 2247 | 449                              | 899  | 2530                                        | 734  | 1184  | 0.00 | 0.00           | 19                      | 0.01                    |                                               |

## Formulir SIG- III Jam Puncak Pagi Simpang Ngabean

|                                                                       |    |                                |             |                       |             |                   |
|-----------------------------------------------------------------------|----|--------------------------------|-------------|-----------------------|-------------|-------------------|
| SIMPANG BERSINYAL                                                     |    | Tanggal                        |             | : 20 November 2020    |             |                   |
| Formulir SIG-III                                                      |    | Ditangani Oleh                 |             | : Krisnandio          |             |                   |
| WAKTU ANTAR HIJAU                                                     |    | Kota                           |             | : Yogyakarta          |             |                   |
| WAKTU HILANG                                                          |    | Simpang                        |             | : Ngabean             |             |                   |
|                                                                       |    | Perihal                        |             | : 4 - Fase hijau awal |             |                   |
| Berangkat                                                             |    | Lalu Lintas Datang             |             |                       |             | Waktu Merah Semua |
| Kode                                                                  | VE | Kode                           | Utara       | Timur                 | Selatan     | Barat             |
|                                                                       |    | VA                             | 10          | 10                    | 10          | 10                |
| Utara                                                                 | 10 | Jarak Berangkat - Datang (m)   |             |                       |             | 16+5-14           |
|                                                                       |    | Waktu Berangkat - Datang (det) |             |                       |             | 1.6+0.5-1.4       |
| Timur                                                                 | 10 | Jarak Berangkat - Datang (m)   |             |                       | 24+5-19     |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) |             |                       | 2.4+0.5-1.9 | 1                 |
| Selatan                                                               | 10 | Jarak Berangkat - Datang (m)   | 47+5-34     |                       |             |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) | 4.7+0.5-3.4 |                       |             | 0.9               |
| Barat                                                                 | 10 | Jarak Berangkat - Datang (m)   |             | 38+5-36               |             |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) |             | 3.8+0.5-3.6           |             | 0.8               |
| Penentuan Waktu Merah Semua                                           |    |                                |             |                       |             |                   |
|                                                                       |    | Fase 1                         | →           | Fase 2                |             | 2                 |
|                                                                       |    | Fase 2                         | →           | Fase 3                |             | 2                 |
|                                                                       |    | Fase 3                         | →           | Fase 4                |             | 2                 |
|                                                                       |    | Fase 4                         | →           | Fase 1                |             | 2                 |
| Waktu Kuning Total                                                    |    |                                |             |                       |             | 12                |
| Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |    |                                |             |                       |             | 20                |

## Formulir SIG- VI Jam Puncak Pagi Simpang Ngabean

| SIMPANG BERSINYAL            |                      |               |                                  | Tanggal :                                          |                   | Ditangani oleh : KSP      |                   |                           |                            |            |                      |                                |                      |                   |                       |                        |                     |            |           |                                  |       |     |      |      |
|------------------------------|----------------------|---------------|----------------------------------|----------------------------------------------------|-------------------|---------------------------|-------------------|---------------------------|----------------------------|------------|----------------------|--------------------------------|----------------------|-------------------|-----------------------|------------------------|---------------------|------------|-----------|----------------------------------|-------|-----|------|------|
| Formulir SIG-IV              |                      |               |                                  | Kota : Yogyakarta                                  |                   | Perihal : 4 Fase          |                   |                           |                            |            |                      |                                |                      |                   |                       |                        |                     |            |           |                                  |       |     |      |      |
| PENENTUAN WAKTU SINYAL       |                      |               |                                  | Simpang : Simpang 4 Ngebean                        |                   | Periode : Jam Puncak Pagi |                   |                           |                            |            |                      |                                |                      |                   |                       |                        |                     |            |           |                                  |       |     |      |      |
| KAPASITAS                    |                      |               |                                  |                                                    |                   |                           |                   |                           |                            |            |                      |                                |                      |                   |                       |                        |                     |            |           |                                  |       |     |      |      |
| Kode Pendekat                | Hijau dalam fase no. | Tipe pendekat | Fase 1                           |                                                    | Fase 2            |                           | Fase 3            |                           | Fase 4                     |            | Rasio Arus fase (PR) | Rasio Arus lalu lintas smp/jam | Rasio Arus fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |                     |            |           |                                  |       |     |      |      |
|                              |                      |               | Rasio kendaraan berbelok         |                                                    | Arus RT (smp/jam) |                           | Lebar efektif (m) |                           | Arus jenuh (smp/jam hijau) |            |                      |                                |                      |                   |                       |                        |                     |            |           |                                  |       |     |      |      |
|                              |                      |               | P <sub>L</sub> or T <sub>L</sub> | P <sub>R</sub> or T <sub>R</sub>                   | Arah diiri        | Arah lawan                | W <sub>e</sub>    | Nilai dasar smp/jam hijau | Semua tipe pendekat        |            |                      |                                |                      |                   |                       |                        | Hanya tipe P        |            |           | Nilai disesuaika n smp/jam hijau |       |     |      |      |
|                              |                      |               |                                  |                                                    |                   |                           |                   |                           | Hambatan samping           | Kelandaian |                      |                                |                      |                   |                       |                        | Parkir              | Blok kanan | Blok kiri |                                  |       |     |      |      |
| U                            | 1                    | P             | 0.31                             | 0.35                                               |                   |                           |                   | 10.5                      | 6300                       | 0.83       | 0.94                 | 100                            | 100                  | 100               | 100                   | 100                    | 100                 | 5072       | 1302      | 0.257                            | 0.224 | 46  | 1795 | 0.73 |
| T                            | 2                    | P             |                                  | 0.13                                               | 0.00              |                           |                   | 5.4                       | 3240                       | 0.83       | 0.92                 | 100                            | 100                  | 100               | 100                   | 100                    | 100                 | 2434       | 352       | 0.145                            | 0.126 | 23  | 431  | 0.82 |
| S                            | 4                    | P             | 0.62                             | 0.38                                               |                   |                           | 4.8               | 2880                      | 0.83                       | 0.93       | 100                  | 100                            | 100                  | 100               | 100                   | 100                    | 2209                | 443        | 0.201     | 0.175                            | 22    | 374 | 1.19 |      |
| B                            | 3                    | P             | 0.00                             | 1.00                                               |                   |                           | 3                 | 1800                      | 0.83                       | 0.94       | 0.93                 | 100                            | 100                  | 100               | 100                   | 100                    | 1646                | 124        | 0.075     | 0.066                            | 19    | 241 | 0.51 |      |
| BST                          | 2 & 3                | P             | 0.00                             | 1.00                                               |                   |                           | 3.6               | 2160                      | 0.83                       | 0.94       | 0.93                 | 100                            | 100                  | 100               | 100                   | 100                    | 1567                | 734        | 0.468     | 0.409                            | 47    | 567 | 1.30 |      |
| Waktu hilang total LTI (det) |                      |               | 20                               | Waktu siklus pra penyesuaian c <sub>ua</sub> (det) |                   | IFR = 1.145               |                   |                           |                            |            |                      |                                |                      |                   |                       |                        | ΣFR <sub>erit</sub> |            |           |                                  |       |     |      |      |
|                              |                      |               |                                  | Waktu siklus disesuaikan c (det)                   |                   | 80                        |                   |                           |                            |            |                      |                                |                      |                   |                       |                        |                     |            |           |                                  |       |     |      |      |





## Formulir SIG- II Jam Puncak Siang Simpang Wirobrajan

| SIMPANG BERSINYAL |       |            | Tanggal :                  |          |    |                                          |    |                      |     |                      |      |                                             |      |          | Ditangani oleh : Krisnandio S P |                |  |                         |  |                          |  |
|-------------------|-------|------------|----------------------------|----------|----|------------------------------------------|----|----------------------|-----|----------------------|------|---------------------------------------------|------|----------|---------------------------------|----------------|--|-------------------------|--|--------------------------|--|
| Formulir SIG-II   |       |            | Kota : Yogyakarta          |          |    |                                          |    |                      |     |                      |      |                                             |      |          | Perihal : 4 Fase                |                |  |                         |  |                          |  |
| ARUS LALU LINTAS  |       |            | Ukuran kota : 431.939 Jiwa |          |    |                                          |    |                      |     |                      |      |                                             |      |          | Periode : Jam Puncak Siang      |                |  |                         |  |                          |  |
| Kode Pendekat     |       |            | Arah                       |          |    | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |    |                      |     |                      |      |                                             |      |          |                                 |                |  | KEND. TAK BERMOTOR (UM) |  |                          |  |
|                   |       |            |                            |          |    | Kendaraan Ringan (LV)                    |    | Kendaraan Berat (HV) |     | Sepeda Motor (MC)    |      | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |      |          |                                 | Rasio Berbelok |  |                         |  | Arus (Q <sub>UM</sub> )  |  |
|                   |       |            |                            |          |    | emp terlindung = 1,0                     |    | emp terlindung = 1,3 |     | emp terlindung = 0,2 |      |                                             |      |          |                                 |                |  |                         |  | Rasio (Q <sub>UM</sub> ) |  |
|                   |       |            |                            |          |    | emp terlawan = 1,0                       |    | emp terlawan = 1,3   |     | emp terlawan = 0,4   |      |                                             |      |          |                                 |                |  |                         |  | (Q <sub>MV</sub> )       |  |
|                   |       |            |                            |          |    | kend/jam                                 |    | smp / jam            |     | kend/jam             |      | smp / jam                                   |      | kend/jam |                                 | smp / jam      |  |                         |  | kend / jam               |  |
|                   |       | terlindung |                            | terlawan |    | terlindung                               |    | terlawan             |     | terlindung           |      | terlawan                                    |      |          |                                 |                |  |                         |  |                          |  |
| U                 | LT    | 97         | 97                         | 97       | 4  | 5                                        | 5  | 322                  | 64  | 129                  | 423  | 167                                         | 231  | 0.21     | 0                               |                |  |                         |  |                          |  |
|                   | ST    | 187        | 187                        | 187      | 13 | 17                                       | 17 | 842                  | 168 | 337                  | 1042 | 372                                         | 541  |          | 7                               |                |  |                         |  |                          |  |
|                   | RT    | 151        | 151                        | 151      | 10 | 13                                       | 13 | 491                  | 98  | 196                  | 652  | 262                                         | 360  | 0.33     | 4                               |                |  |                         |  |                          |  |
|                   | Total | 435        | 435                        | 435      | 27 | 35                                       | 35 | 1655                 | 331 | 662                  | 2117 | 801                                         | 1132 |          | 11                              | 0.01           |  |                         |  |                          |  |
| T                 | LT    | 67         | 67                         | 67       | 1  | 1                                        | 1  | 523                  | 105 | 209                  | 591  | 173                                         | 278  | 0.17     | 4                               |                |  |                         |  |                          |  |
|                   | ST    | 161        | 161                        | 161      | 16 | 21                                       | 21 | 823                  | 165 | 329                  | 1000 | 346                                         | 511  |          | 6                               |                |  |                         |  |                          |  |
|                   | RT    | 210        | 210                        | 210      | 15 | 20                                       | 20 | 1464                 | 293 | 586                  | 1689 | 522                                         | 815  | 0.50     | 9                               |                |  |                         |  |                          |  |
|                   | Total | 438        | 438                        | 438      | 32 | 42                                       | 42 | 2810                 | 562 | 1124                 | 3280 | 1042                                        | 1604 |          | 19                              | 0.01           |  |                         |  |                          |  |
| S                 | LT    | 52         | 52                         | 52       | 6  | 8                                        | 8  | 356                  | 71  | 142                  | 414  | 131                                         | 202  | 0.30     | 11                              |                |  |                         |  |                          |  |
|                   | ST    | 87         | 87                         | 87       | 3  | 4                                        | 4  | 807                  | 161 | 323                  | 897  | 252                                         | 414  |          | 5                               |                |  |                         |  |                          |  |
|                   | RT    | 26         | 26                         | 26       | 1  | 1                                        | 1  | 140                  | 28  | 56                   | 167  | 55                                          | 83   | 0.13     | 1                               |                |  |                         |  |                          |  |
|                   | Total | 165        | 165                        | 165      | 10 | 13                                       | 13 | 1303                 | 261 | 521                  | 1478 | 439                                         | 699  |          | 17                              | 0.01           |  |                         |  |                          |  |
| B                 | LT    | 77         | 77                         | 77       | 8  | 10                                       | 10 | 402                  | 80  | 161                  | 487  | 168                                         | 248  | 0.16     | 2                               |                |  |                         |  |                          |  |
|                   | ST    | 223        | 223                        | 223      | 7  | 9                                        | 9  | 945                  | 189 | 378                  | 1175 | 421                                         | 610  |          | 7                               |                |  |                         |  |                          |  |
|                   | RT    | 219        | 219                        | 219      | 14 | 18                                       | 18 | 962                  | 192 | 385                  | 1195 | 430                                         | 622  | 0.42     | 14                              |                |  |                         |  |                          |  |
|                   | Total | 519        | 519                        | 519      | 29 | 38                                       | 38 | 2309                 | 462 | 924                  | 2857 | 1019                                        | 1480 |          | 23                              | 0.01           |  |                         |  |                          |  |

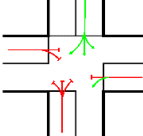
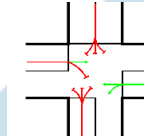
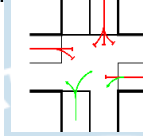
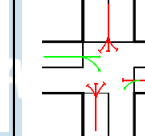
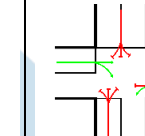
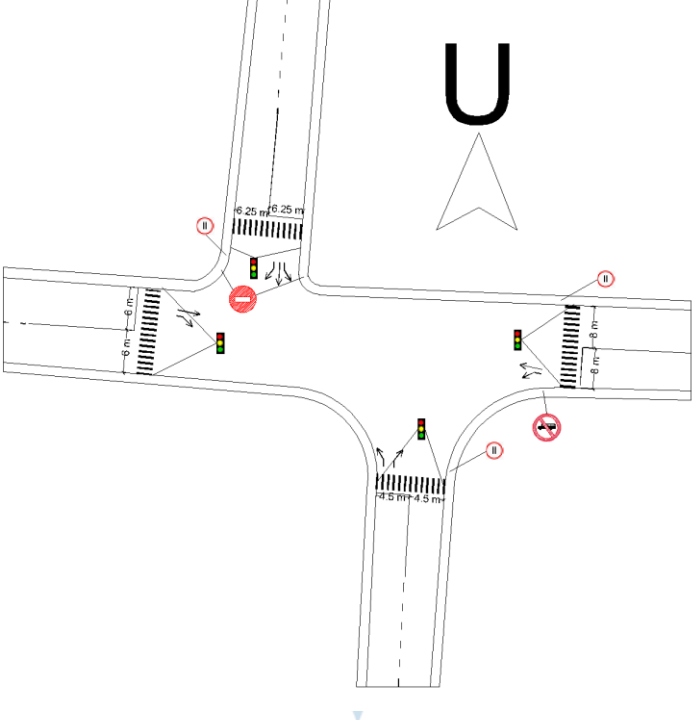
## Formulir SIG- III Jam Puncak Siang Simpang Wirobrajan

|                   |    |                                                                        |             |                       |             |                   |
|-------------------|----|------------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|
| SIMPANG BERSINYAL |    | Tanggal                                                                |             | : 20 November 2020    |             |                   |
| Formulir SIG-III  |    | Ditangani Oleh                                                         |             | : Krisnandio          |             |                   |
| WAKTU ANTAR HIJAU |    | Kota                                                                   |             | : Yogyakarta          |             |                   |
| WAKTU HILANG      |    | Simpang                                                                |             | : Wirobrajan          |             |                   |
|                   |    | Perihal                                                                |             | : 4 - Fase hijau awal |             |                   |
| Berangkat         |    | Lalu Lintas Datang                                                     |             |                       |             | Waktu Merah Semua |
| Kode              | VE | Kode                                                                   | Utara       | Timur                 | Selatan     | Barat             |
|                   |    | VA                                                                     | 10          | 10                    | 10          | 10                |
| Utara             | 10 | Jarak Berangkat - Datang (m)                                           |             | 22+5-17               |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                         |             | 2.2+0.5-1.7           |             |                   |
| Timur             | 10 | Jarak Berangkat - Datang (m)                                           |             |                       | 24+5-21     |                   |
|                   |    | Waktu Berangkat - Datang (det)                                         |             |                       | 2.4+0.5-2.1 |                   |
| Selatan           | 10 | Jarak Berangkat - Datang (m)                                           |             |                       |             | 29+5-22           |
|                   |    | Waktu Berangkat - Datang (det)                                         |             |                       |             | 2.9+0.5-2.2       |
| Barat             | 10 | Jarak Berangkat - Datang (m)                                           | 29+5-15     |                       |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                         | 2.9+0.5-1.5 |                       |             |                   |
|                   |    | Penentuan Waktu Merah Semua                                            |             |                       |             | 1.9               |
|                   |    | Fase 1                                                                 | →           | Fase 2                |             | 2                 |
|                   |    | Fase 2                                                                 | →           | Fase 3                |             | 2                 |
|                   |    | Fase 3                                                                 | →           | Fase 4                |             | 2                 |
|                   |    | Fase 4                                                                 | →           | Fase 1                |             | 2                 |
|                   |    | Waktu Kuning Total                                                     |             |                       |             | 12                |
|                   |    | Waktu Hilang Total (L/TI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             | 20                |





### Formulir SIG- I Jam Puncak Siang Simpang Ngabean

| Lampiran 1. Data Kondisi Lapangan                                                   |                                                                                   | Tanggal :                                                                         | Ditangani oleh : Krisnandio S.P.                                                  |                                                                                     |                                     |                               |                         |                          |                                       |                            |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| Formulir SIG-I                                                                      |                                                                                   | Simpang : Simpang 4 Ngabean                                                       |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| GEOMETRI                                                                            |                                                                                   | Ukuran kota : 431.939 Jiwa                                                        |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS                                                              |                                                                                   | Perihal : 4 Fase                                                                  |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| LINGKUNGAN                                                                          |                                                                                   | Periode : Jam Puncak Siang                                                        |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| g = 45                                                                              | g = 24                                                                            | g = 25                                                                            | g = 19                                                                            | g = 48                                                                              | Waktu siklus:<br>c = 134            |                               |                         |                          |                                       |                            |
|    |  |  |  |  | Waktu hilang<br>total :<br>LT1 = 20 |                               |                         |                          |                                       |                            |
| IG = 5                                                                              | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                              |                                     |                               |                         |                          |                                       |                            |
|  |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| Kode pendekat                                                                       | Tipe lingkungan jalan                                                             | Hambatan samping Tinggi / Rendah                                                  | Median Ya/Tidak                                                                   | Kelandaian +/- %                                                                    | Belok kiri langsung Ya/Tidak        | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | Y                                   | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST                                                                                 | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |

## Formulir SIG- II Jam Puncak Siang Simpang Ngabean

| SIMPANG BERSINYAL |       |                       | Tanggal :                                |                      |    | Ditangani oleh : Krisnandio S P |    |                      |     |            |      |                                             |                         |            |    |                |     |                         |                                               |          |  |
|-------------------|-------|-----------------------|------------------------------------------|----------------------|----|---------------------------------|----|----------------------|-----|------------|------|---------------------------------------------|-------------------------|------------|----|----------------|-----|-------------------------|-----------------------------------------------|----------|--|
| Formulir SIG-II   |       |                       | Kota : Yogyakarta                        |                      |    | Perihal : 4 Fase                |    |                      |     |            |      |                                             |                         |            |    |                |     |                         |                                               |          |  |
| ARUS LALU LINTAS  |       |                       | Simpang : Simpang 4 Ngabean              |                      |    | Periode : Jam Puncak Siang      |    |                      |     |            |      |                                             |                         |            |    |                |     |                         |                                               |          |  |
|                   |       |                       | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |                      |    |                                 |    |                      |     |            |      |                                             | KEND. TAK BERMOTOR (UM) |            |    |                |     |                         |                                               |          |  |
| Kode Pendekat     | Arah  | Kendaraan Ringan (LV) |                                          | Kendaraan Berat (HV) |    |                                 |    | Sepeda Motor (MC)    |     |            |      | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |                         |            |    | Rasio Berbelok |     | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) / (Q <sub>MV</sub> ) |          |  |
|                   |       | emp terlindung = 1,0  |                                          | emp terlindung = 1,3 |    | emp terlindung = 0,2            |    | emp terlindung = 0,4 |     | smp / jam  |      | smp / jam                                   |                         | smp / jam  |    | PLTOR          | PRT |                         |                                               |          |  |
|                   |       | emp terlawan = 1,0    |                                          | emp terlawan = 1,3   |    | emp terlawan = 0,4              |    | emp terlawan = 0,4   |     | kend/jam   |      | kend/jam                                    |                         | kend/jam   |    |                |     | terlindung              |                                               | terlawan |  |
|                   |       | kend/jam              |                                          | smp / jam            |    | kend/jam                        |    | smp / jam            |     | kend/jam   |      | smp / jam                                   |                         | kend/jam   |    | smp / jam      |     | terlindung              |                                               | terlawan |  |
|                   |       | terlindung            |                                          | terlawan             |    | terlindung                      |    | terlawan             |     | terlindung |      | terlawan                                    |                         | terlindung |    | terlawan       |     | terlindung              |                                               | terlawan |  |
| U                 | LT    | 319                   | 319                                      | 319                  | 6  | 8                               | 8  | 973                  | 195 | 389        | 1298 | 521                                         | 716                     | 0.38       | 5  |                |     |                         |                                               |          |  |
|                   | ST    | 272                   | 272                                      | 272                  | 2  | 3                               | 3  | 1097                 | 219 | 439        | 1371 | 494                                         | 713                     |            | 3  |                |     |                         |                                               |          |  |
|                   | RT    | 192                   | 192                                      | 192                  | 13 | 17                              | 17 | 798                  | 160 | 319        | 1003 | 369                                         | 528                     | 0.27       | 2  |                |     |                         |                                               |          |  |
|                   | Total | 783                   | 783                                      | 783                  | 21 | 27                              | 27 | 2868                 | 574 | 1147       | 3672 | 1384                                        | 1958                    |            | 10 | 0.00           |     |                         |                                               |          |  |
| T                 | LT    | 17                    | 17                                       | 17                   | 8  | 10                              | 10 | 187                  | 37  | 75         | 212  | 65                                          | 102                     | 0.14       | 2  |                |     |                         |                                               |          |  |
|                   | ST    | 190                   | 190                                      | 190                  | 4  | 5                               | 5  | 1020                 | 204 | 408        | 1214 | 399                                         | 603                     |            | 4  |                |     |                         |                                               |          |  |
|                   | RT    | 0                     | 0                                        | 0                    |    | 0                               | 0  | 0                    | 0   | 0          | 0    | 0                                           | 0                       | 0.00       |    |                |     |                         |                                               |          |  |
|                   | Total | 207                   | 207                                      | 207                  | 12 | 16                              | 16 | 1207                 | 241 | 483        | 1426 | 464                                         | 705                     |            | 6  | 0.00           |     |                         |                                               |          |  |
| S                 | LT    | 112                   | 112                                      | 112                  | 3  | 4                               | 4  | 710                  | 142 | 284        | 825  | 258                                         | 400                     | 0.61       | 15 |                |     |                         |                                               |          |  |
|                   | ST    | 0                     | 0                                        | 0                    |    | 0                               | 0  | 0                    | 0   | 0          | 0    | 0                                           | 0                       |            | 0  |                |     |                         |                                               |          |  |
|                   | RT    | 92                    | 92                                       | 92                   | 5  | 7                               | 7  | 318                  | 64  | 127        | 415  | 162                                         | 226                     | 0.39       | 9  |                |     |                         |                                               |          |  |
|                   | Total | 204                   | 204                                      | 204                  | 8  | 10                              | 10 | 1028                 | 206 | 411        | 1240 | 420                                         | 626                     |            | 24 | 0.02           |     |                         |                                               |          |  |
| B                 | LT    | 0                     | 0                                        | 0                    |    | 0                               | 0  | 0                    | 0   | 0          | 0    | 0                                           | 0                       | 0.00       |    |                |     |                         |                                               |          |  |
|                   | ST    | 0                     | 0                                        | 0                    |    | 0                               | 0  | 0                    | 0   | 0          | 0    | 0                                           | 0                       |            |    |                |     |                         |                                               |          |  |
|                   | RT    | 47                    | 47                                       | 47                   | 1  | 1                               | 1  | 319                  | 64  | 128        | 367  | 112                                         | 176                     | 1.00       | 3  |                |     |                         |                                               |          |  |
|                   | Total | 47                    | 47                                       | 47                   | 1  | 1                               | 1  | 319                  | 64  | 128        | 367  | 112                                         | 176                     |            | 3  | 0.01           |     |                         |                                               |          |  |
| BST               | LT    | 0                     | 0                                        | 0                    |    | 0                               | 0  | 0                    | 0   | 0          | 0    | 0                                           | 0                       | 0.00       |    |                |     |                         |                                               |          |  |
|                   | ST    | 257                   | 257                                      | 257                  | 20 | 26                              | 26 | 1710                 | 342 | 684        | 1987 | 625                                         | 967                     |            | 4  |                |     |                         |                                               |          |  |
|                   | RT    | 0                     | 0                                        | 0                    | 0  | 0                               | 0  | 0                    | 0   | 0          | 0    | 0                                           | 0                       | 0.00       |    |                |     |                         |                                               |          |  |
|                   | Total | 257                   | 257                                      | 257                  | 20 | 26                              | 26 | 1710                 | 342 | 684        | 1987 | 625                                         | 967                     |            | 4  | 0.00           |     |                         |                                               |          |  |

## Formulir SIG- III Jam Puncak Siang Simpang Ngabean

|                   |    |                                                                       |             |             |             |             |                   |
|-------------------|----|-----------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------------|
| SIMPANG BERSINYAL |    | Tanggal : 20 November 2020                                            |             |             |             |             |                   |
| Formulir SIG-III  |    | Ditangani Oleh : Krisnandio                                           |             |             |             |             |                   |
|                   |    | Kota : Yogyakarta                                                     |             |             |             |             |                   |
|                   |    | Simpang : Ngabean                                                     |             |             |             |             |                   |
|                   |    | Perihal : 4 - Fase hijau awal                                         |             |             |             |             |                   |
|                   |    | WAKTU ANTAR HIJAU                                                     |             |             |             |             |                   |
|                   |    | WAKTU HILANG                                                          |             |             |             |             |                   |
| Berangkat         |    | Lalu Lintas Datang                                                    |             |             |             |             |                   |
| Kode              | VE | Kode                                                                  | Utara       | Timur       | Selatan     | Barat       | Waktu Merah Semua |
|                   |    | VA                                                                    | 10          | 10          | 10          | 10          |                   |
| Utara             | 10 | Jarak Berangkat - Datang (m)                                          |             |             |             | 16+5-14     |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |             |             | 1.6+0.5-1.4 | 0.7               |
| Timur             | 10 | Jarak Berangkat - Datang (m)                                          |             |             | 24+5-19     |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |             | 2.4+0.5-1.9 |             | 1                 |
| Selatan           | 10 | Jarak Berangkat - Datang (m)                                          | 47+5-34     |             |             |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        | 4.7+0.5-3.4 |             |             |             | 0.9               |
| Barat             | 10 | Jarak Berangkat - Datang (m)                                          |             | 38+5-36     |             |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             | 3.8+0.5-3.6 |             |             | 0.8               |
|                   |    | Penentuan Waktu Merah Semua                                           |             |             |             |             |                   |
|                   |    | Fase 1                                                                | →           | Fase 2      |             |             |                   |
|                   |    | Fase 2                                                                | →           | Fase 3      |             |             |                   |
|                   |    | Fase 3                                                                | →           | Fase 4      |             |             |                   |
|                   |    | Fase 4                                                                | →           | Fase 1      |             |             |                   |
|                   |    | Waktu Kuning Total                                                    |             |             |             |             |                   |
|                   |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |             |             |             |                   |
|                   |    | 20                                                                    |             |             |             |             |                   |



## Formulir SIG- V Jam Puncak Siang Simpang Ngabean

| Kode Pendekat               | Arus lalu lintas smp/jam | Kapasitas smp/jam | Derajat kejenuhan DS | Rasio hijau GR | Jumlah kendaraan antri |                 |                                                |                   | Panjang antrian (m) | Rasio kendaraan stop/smp                | Jumlah kendaraan terhenti | Tundaan                               |                                    |                                       |                       |
|-----------------------------|--------------------------|-------------------|----------------------|----------------|------------------------|-----------------|------------------------------------------------|-------------------|---------------------|-----------------------------------------|---------------------------|---------------------------------------|------------------------------------|---------------------------------------|-----------------------|
|                             |                          |                   |                      |                | NQ <sub>1</sub>        | NQ <sub>2</sub> | Total NQ <sub>1</sub> +NQ <sub>2</sub><br>= NQ | NQ <sub>MAX</sub> |                     |                                         |                           | Tundaan lalu lintas rata-rata det/smp | Tundaan geometri rata-rata det/smp | Tundaan rata-rata det/smp             | Tundaan total det.smp |
|                             | Q                        | C                 | Q/C                  | g/c            |                        |                 |                                                |                   | QL                  | NS                                      | N <sub>SV</sub>           | DT                                    | DG                                 | D=DT+DG                               | D x Q                 |
| U                           | 1384                     | 1695              | 0.82                 | 0.34           | 1.7                    | 47.0            | 48.7                                           | 62.0              | 118                 | 0.85                                    | 1178                      | 43.8                                  | 4.0                                | 47.7                                  | 66066                 |
| T                           | 399                      | 443               | 0.90                 | 0.18           | 3.5                    | 14.5            | 18.1                                           | 25.0              | 167                 | 1.09                                    | 437                       | 82.5                                  | 4.3                                | 86.8                                  | 34653                 |
| S                           | 420                      | 412               | 1.02                 | 0.19           | 12.4                   | 15.7            | 28.1                                           | 40.0              | 167                 | 1.62                                    | 680                       | 163.0                                 | 2.8                                | 165.8                                 | 69632                 |
| B                           | 112                      | 232               | 0.48                 | 0.14           | 0.0                    | 3.8             | 3.8                                            | 7.0               | 47                  | 0.83                                    | 93                        | 53.0                                  | 4.3                                | 57.3                                  | 6425                  |
|                             | 625                      | 559               | 1.12                 | 0.36           | 37.6                   | 24.9            | 62.5                                           | 72.0              | 400                 | 2.42                                    | 1511                      | 288.1                                 | 9.7                                | 297.8                                 | 186095                |
| LTOR (Semua)                | 844                      |                   |                      |                |                        |                 |                                                |                   |                     |                                         |                           | 0                                     | 6                                  | 6                                     | 5065                  |
| Arus kor. Q kor             |                          |                   |                      |                |                        |                 |                                                |                   |                     | TOTAL                                   | 3898                      |                                       |                                    | TOTAL                                 | 367935                |
| Arus total Q <sub>tot</sub> | 3784                     |                   |                      |                |                        |                 |                                                |                   |                     | Kendaraan terhenti rata-rata stop/smp : | 1.030                     |                                       |                                    | Tundaan simpang rata-rata : (det/smp) | 97.2                  |

## Formulir SIG- I Jam Puncak Sore Simpang Wirobrajan

| Lampiran 1. Data Kondisi Lapangan |                          | Tanggal :                        | Ditangani oleh : Krisnandio S.P.                                     |                  |                              |                               |                    |                   |                                |                     |
|-----------------------------------|--------------------------|----------------------------------|----------------------------------------------------------------------|------------------|------------------------------|-------------------------------|--------------------|-------------------|--------------------------------|---------------------|
| SIMPANG BERSINYAL                 |                          |                                  |                                                                      |                  |                              |                               |                    |                   |                                |                     |
| Formulir SIG-I                    |                          | Simpang : Simpang 4 Wirobrajan   |                                                                      |                  |                              |                               |                    |                   |                                |                     |
| GEOMETRI                          |                          | Ukuran kota : 431.939 Jiwa       |                                                                      |                  |                              |                               |                    |                   |                                |                     |
| PENGATURAN LALU LINTAS            |                          | Perihal : 4 Fase                 |                                                                      |                  |                              |                               |                    |                   |                                |                     |
| LINGKUNGAN                        |                          | Periode : Jam Puncak Sore        |                                                                      |                  |                              |                               |                    |                   |                                |                     |
| FASE SINYAL YANG ADA              |                          |                                  |                                                                      |                  |                              |                               |                    |                   |                                |                     |
| $g = 50$<br><br>$IG = 5$          | $g = 50$<br><br>$IG = 5$ | $g = 42$<br><br>$IG = 5$         | $g = 40$<br><br>$IG = 5$                                             |                  |                              |                               |                    |                   |                                |                     |
|                                   |                          |                                  | Waktu siklus:<br>$c = 202$<br><br>Waktu Hilang Total :<br>$LT1 = 20$ |                  |                              |                               |                    |                   |                                |                     |
|                                   |                          |                                  |                                                                      |                  |                              |                               |                    |                   |                                |                     |
| KONDISI LAPANGAN                  |                          |                                  |                                                                      |                  |                              |                               |                    |                   |                                |                     |
| Kode pendekat                     | Tipe lingkungan jalan    | Hambatan samping Tinggi / Rendah | Median Ya/Tidak                                                      | Kelandaian +/- % | Belok kiri langsung Ya/Tidak | Jarak ke kendaraan parkir (m) | Lebar pendekat (m) |                   |                                |                     |
|                                   |                          |                                  |                                                                      |                  |                              |                               | Pendekat $W_A$     | Masuk $W_{MASUK}$ | Belok kiri langsung $W_{LTOR}$ | Keluar $W_{KELUAR}$ |
| U                                 | COM                      | Tinggi                           | T                                                                    | 0                | Y                            | 0                             | 6.9                | 4                 | 2.9                            | 5.7                 |
| T                                 | COM                      | Tinggi                           | T                                                                    | 0                | Y                            | 0                             | 6.6                | 3.6               | 3                              | 6                   |
| S                                 | COM                      | Tinggi                           | T                                                                    | 0                | Y                            | 0                             | 6.3                | 3.6               | 2.7                            | 6.9                 |
| B                                 | COM                      | Tinggi                           | T                                                                    | 0                | Y                            | 0                             | 7.2                | 4.8               | 2.4                            | 5.4                 |

## Formulir SIG- II Jam Puncak Sore Simpang Wirobrajan

| SIMPANG BERSINYAL |       | Tanggal :                                |     | Ditangani oleh : Krisnandio S P |    |                    |    |                                             |     |           |      |                |      |                         |         |                         |                                             |
|-------------------|-------|------------------------------------------|-----|---------------------------------|----|--------------------|----|---------------------------------------------|-----|-----------|------|----------------|------|-------------------------|---------|-------------------------|---------------------------------------------|
| Formulir SIG-II   |       | Kota : Yogyakarta                        |     | Perihal : 4 Fase                |    |                    |    |                                             |     |           |      |                |      |                         |         |                         |                                             |
| ARUS LALU LINTAS  |       | Simpang 4 Wirobrajan                     |     | Periode : Jam Puncak Pagi       |    |                    |    |                                             |     |           |      |                |      |                         |         |                         |                                             |
| Kode Pendekat     | Arah  | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |     |                                 |    |                    |    |                                             |     |           |      |                |      | KEND. TAK BERMOTOR (UM) |         |                         |                                             |
|                   |       | Kendaraan Ringan (LV)                    |     | Kendaraan Berat (HV)            |    | Sepeda Motor (MC)  |    | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |     |           |      | Rasio Berbelok |      |                         |         | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |
|                   |       | emp terlindung = 1,0                     |     | emp terlawan = 1,3              |    | emp terlawan = 0,2 |    | smp / jam                                   |     | kend/jam  |      | PLTOR          |      |                         |         |                         |                                             |
|                   |       | emp terlawan = 1,0                       |     | emp terlawan = 1,3              |    | emp terlawan = 0,4 |    | smp / jam                                   |     | kend/jam  |      | PLTOR          |      |                         |         |                         |                                             |
|                   |       | smp / jam                                |     | smp / jam                       |    | smp / jam          |    | smp / jam                                   |     | smp / jam |      | smp / jam      |      |                         |         |                         |                                             |
|                   |       | kend/jam                                 |     | kend/jam                        |    | kend/jam           |    | kend/jam                                    |     | kend/jam  |      | kend/jam       |      |                         |         |                         |                                             |
| U                 | LT    | 49                                       | 49  | 49                              | 2  | 3                  | 3  | 282                                         | 56  | 113       | 333  | 108            | 164  | 0.11                    | 4       |                         |                                             |
|                   | ST    | 219                                      | 219 | 219                             | 3  | 4                  | 4  | 1328                                        | 266 | 531       | 1550 | 489            | 754  |                         | 12      |                         |                                             |
|                   | RT    | 224                                      | 224 | 224                             | 7  | 9                  | 9  | 983                                         | 197 | 393       | 1214 | 430            | 626  | 0.42                    | 2       |                         |                                             |
|                   | Total | 492                                      | 492 | 492                             | 12 | 16                 | 16 | 2593                                        | 519 | 1037      | 3097 | 1026           | 1545 | 0.11 0.42               | 18 0.01 |                         |                                             |
|                   | LT    | 95                                       | 95  | 95                              | 1  | 1                  | 1  | 1026                                        | 205 | 410       | 1122 | 302            | 507  | 0.29                    | 14      |                         |                                             |
| T                 | ST    | 200                                      | 200 | 200                             | 12 | 16                 | 16 | 1268                                        | 254 | 507       | 1480 | 469            | 723  |                         | 19      |                         |                                             |
|                   | RT    | 156                                      | 156 | 156                             | 13 | 17                 | 17 | 481                                         | 96  | 192       | 650  | 269            | 365  | 0.26                    | 9       |                         |                                             |
|                   | Total | 451                                      | 451 | 451                             | 26 | 34                 | 34 | 2775                                        | 555 | 1110      | 3252 | 1040           | 1595 | 0.29 0.26               | 42 0.01 |                         |                                             |
|                   | LT    | 83                                       | 83  | 83                              | 7  | 9                  | 9  | 799                                         | 160 | 320       | 889  | 252            | 412  | 0.38                    | 11      |                         |                                             |
|                   | ST    | 165                                      | 165 | 165                             | 9  | 12                 | 12 | 784                                         | 157 | 314       | 958  | 334            | 490  |                         | 5       |                         |                                             |
| S                 | RT    | 32                                       | 32  | 32                              | 0  | 0                  | 0  | 200                                         | 40  | 80        | 232  | 72             | 112  | 0.11                    | 1       |                         |                                             |
|                   | Total | 280                                      | 280 | 280                             | 16 | 21                 | 21 | 1783                                        | 357 | 713       | 2079 | 657            | 1014 | 0.38 0.11               | 17 0.01 |                         |                                             |
|                   | LT    | 375                                      | 375 | 375                             | 10 | 13                 | 13 | 1643                                        | 329 | 657       | 2028 | 717            | 1045 | 0.47                    | 13      |                         |                                             |
|                   | ST    | 200                                      | 200 | 200                             | 7  | 9                  | 9  | 989                                         | 198 | 396       | 1196 | 407            | 605  |                         | 10      |                         |                                             |
|                   | RT    | 204                                      | 204 | 204                             | 2  | 3                  | 3  | 903                                         | 181 | 361       | 1109 | 387            | 568  | 0.26                    | 11      |                         |                                             |
| B                 | Total | 779                                      | 779 | 779                             | 19 | 25                 | 25 | 3535                                        | 707 | 1414      | 4333 | 1511           | 2218 | 0.47 0.26               | 34 0.01 |                         |                                             |

## Formulir SIG- III Jam Puncak Sore Simpang Wirobrajan

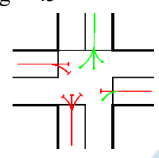
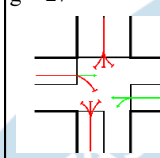
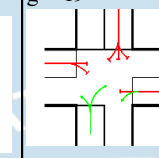
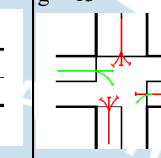
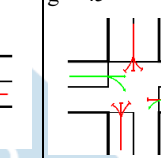
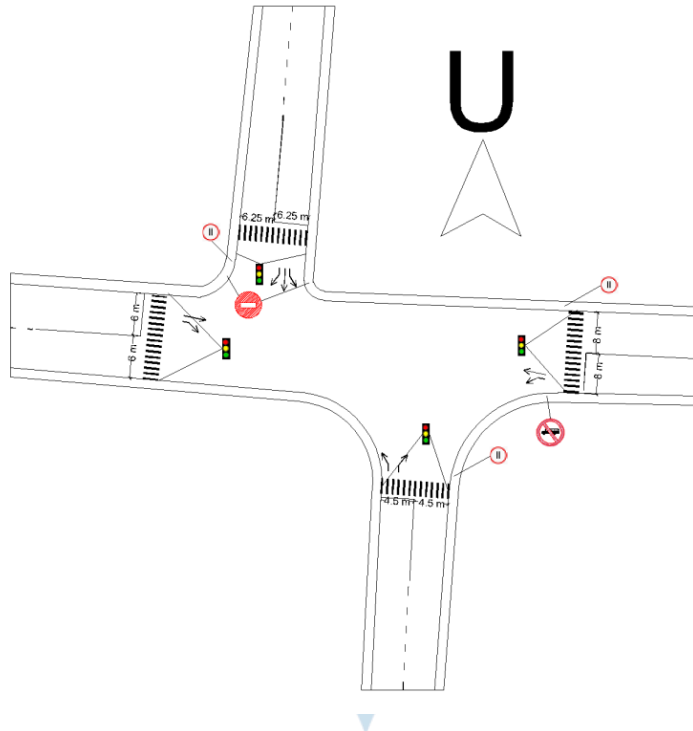
|                   |    |                                                                       |             |                       |             |                   |
|-------------------|----|-----------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|
| SIMPANG BERSINYAL |    | Tanggal                                                               |             | : 20 November 2020    |             |                   |
| Formulir SIG-III  |    | Ditangani Oleh                                                        |             | : Krisnandio          |             |                   |
| WAKTU ANTAR HIJAU |    | Kota                                                                  |             | : Yogyakarta          |             |                   |
| WAKTU HILANG      |    | Simpang                                                               |             | : Wirobrajan          |             |                   |
|                   |    | Perihal                                                               |             | : 4 - Fase hijau awal |             |                   |
| Berangkat         |    | Lalu Lintas Datang                                                    |             |                       |             | Waktu Merah Semua |
| Kode              | VE | Kode                                                                  | Utara       | Timur                 | Selatan     | Barat             |
|                   |    | VA                                                                    | 10          | 10                    | 10          | 10                |
| Utara             | 10 | Jarak Berangkat - Datang (m)                                          |             | 22+5-17               |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             | 2.2+0.5-1.7           |             |                   |
| Timur             | 10 | Jarak Berangkat - Datang (m)                                          |             |                       | 24+5-21     |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       | 2.4+0.5-2.1 |                   |
| Selatan           | 10 | Jarak Berangkat - Datang (m)                                          |             |                       |             | 29+5-22           |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       |             | 2.9+0.5-2.2       |
| Barat             | 10 | Jarak Berangkat - Datang (m)                                          | 29+5-15     |                       |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        | 2.9+0.5-1.5 |                       |             |                   |
|                   |    | Penentuan Waktu Merah Semua                                           |             |                       |             |                   |
|                   |    | Fase 1 → Fase 2                                                       |             |                       |             | 2                 |
|                   |    | Fase 2 → Fase 3                                                       |             |                       |             | 2                 |
|                   |    | Fase 3 → Fase 4                                                       |             |                       |             | 2                 |
|                   |    | Fase 4 → Fase 1                                                       |             |                       |             | 2                 |
|                   |    | Waktu Kuning Total                                                    |             |                       |             | 12                |
|                   |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             | 20                |

## Formulir SIG- IV Jam Puncak Sore Simpang Wirobrajan

| SIMPANG BERSINYAL                     |                      |               |                          | Tanggal :                              |                   | Ditangani oleh : KSP                 |                            |      |                          |                 |                   |                       |                        |                                 |         |       |       |                          |         |       |  |
|---------------------------------------|----------------------|---------------|--------------------------|----------------------------------------|-------------------|--------------------------------------|----------------------------|------|--------------------------|-----------------|-------------------|-----------------------|------------------------|---------------------------------|---------|-------|-------|--------------------------|---------|-------|--|
| Formulir SIG-IV                       |                      |               |                          | Kota : Yogyakarta                      |                   | Perihal : 4 Fase                     |                            |      |                          |                 |                   |                       |                        |                                 |         |       |       |                          |         |       |  |
| PENENTUAN WAKTU SINYAL                |                      |               |                          | Simpang : Simpang 4 Wirobrajan         |                   | Periode : Jam Puncak Sore            |                            |      |                          |                 |                   |                       |                        |                                 |         |       |       |                          |         |       |  |
| KAPASITAS                             |                      |               |                          |                                        |                   |                                      |                            |      |                          |                 |                   |                       |                        |                                 |         |       |       |                          |         |       |  |
| Distribusi arus lalu lintas (smp/jam) |                      |               |                          | Fase 1                                 |                   | Fase 2                               |                            |      |                          |                 |                   |                       |                        |                                 |         |       |       |                          |         |       |  |
| U ↑                                   |                      |               |                          | Fase 3                                 |                   | Fase 4                               |                            |      |                          |                 |                   |                       |                        |                                 |         |       |       |                          |         |       |  |
| Kode Pendekat                         | Hijau dalam fase no. | Tipe pendekat | Rasio kendaraan berbelok |                                        | Arus RT (smp/jam) | Lebar efektif (m)                    | Arus jenuh (smp/jam hijau) |      | Arus lalu lintas smp/jam | Rasio fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |                                 |         |       |       |                          |         |       |  |
|                                       |                      |               | PLTOR                    | PLT                                    |                   |                                      | PLT                        | PLR  |                          |                 |                   |                       |                        | Nilai disesuaikan smp/jam hijau | Nilai S | Q     | Q/S   | Fr <sub>crit</sub> / IFR | S x g/c | Q / C |  |
| U                                     | 1                    | P             |                          | 0.11                                   | 0.42              |                                      | 6.9                        | Fcs  | Fsf                      | Fg              | Fp                | Fkrt                  | Flt                    | S                               | Q       | 0.262 | 0.297 | 50                       | 868     | 1.06  |  |
| T                                     | 2                    | P             |                          | 0.29                                   | 0.26              |                                      | 6.6                        | 0.83 | 0.94                     | 1.00            | 1.00              | 1.11                  | 0.95                   | 3131                            | 738     | 0.236 | 0.268 | 50                       | 775     | 0.95  |  |
| S                                     | 3                    | P             |                          | 0.38                                   | 0.11              |                                      | 6.3                        | 0.83 | 0.94                     | 1.00            | 1.00              | 1.03                  | 0.94                   | 2835                            | 406     | 0.143 | 0.162 | 42                       | 589     | 0.69  |  |
| B                                     | 4                    | P             |                          | 0.47                                   | 0.26              |                                      | 7.2                        | 0.83 | 0.94                     | 1.00            | 1.00              | 1.07                  | 0.92                   | 3308                            | 794     | 0.240 | 0.273 | 40                       | 655     | 1.21  |  |
| Waktu hilang total LTI (det)          |                      |               | 20                       | Waktu siklus pra penyesuaian cua (det) |                   | Waktu siklus pra penyesuaian c (det) |                            | 202  |                          | IFR = 0.881     |                   | ΣFR <sub>crit</sub>   |                        |                                 |         |       |       |                          |         |       |  |



### Formulir SIG- I Jam Puncak Sore Simpang Ngabean

| Lampiran 1. Data Kondisi Lapangan                                                                     |                                                                                                       | Tanggal :                                                                                             | Ditangani oleh : Krisnandio S.P.                                                                      |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                                                                                     |                                                                                                       |                                                                                                       |                                                                                                       |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
| Formulir SIG-I                                                                                        |                                                                                                       | Simpang : Simpang 4 Ngabean                                                                           |                                                                                                       |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
| GEOMETRI                                                                                              |                                                                                                       | Ukuran kota : 431.939 Jiwa                                                                            |                                                                                                       |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS                                                                                |                                                                                                       | Perihal : 4 Fase                                                                                      |                                                                                                       |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
| LINGKUNGAN                                                                                            |                                                                                                       | Periode : Jam Puncak Sore                                                                             |                                                                                                       |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA                                                                                  |                                                                                                       |                                                                                                       |                                                                                                       |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
| g = 45<br><br>IG = 5 | g = 27<br><br>IG = 5 | g = 19<br><br>IG = 5 | g = 13<br><br>IG = 5 | g = 45<br><br>IG = 5 | Waktu siklus:<br>c = 124<br><br>Waktu hilang<br>total :<br>LTI = 20 |                               |                         |                          |                                       |                            |
|                    |                                                                                                       |                                                                                                       |                                                                                                       |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                                                                                      |                                                                                                       |                                                                                                       |                                                                                                       |                                                                                                         |                                                                     |                               |                         |                          |                                       |                            |
| Kode pendekat                                                                                         | Tipe lingkungan jalan                                                                                 | Hambatan samping Tinggi / Rendah                                                                      | Median Ya/Tidak                                                                                       | Kelandaian +/- %                                                                                        | Belok kiri langsung Ya/Tidak                                        | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                                                                                       |                                                                                                       |                                                                                                       |                                                                                                       |                                                                                                         |                                                                     |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                                                                                     | COM                                                                                                   | Tinggi                                                                                                | T                                                                                                     | 0                                                                                                       | T                                                                   | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T                                                                                                     | COM                                                                                                   | Tinggi                                                                                                | T                                                                                                     | 0                                                                                                       | Y                                                                   | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S                                                                                                     | COM                                                                                                   | Tinggi                                                                                                | T                                                                                                     | 0                                                                                                       | T                                                                   | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B                                                                                                     | COM                                                                                                   | Tinggi                                                                                                | T                                                                                                     | 8                                                                                                       | T                                                                   | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST                                                                                                   | COM                                                                                                   | Tinggi                                                                                                | T                                                                                                     | 8                                                                                                       | T                                                                   | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |

## Formulir SIG- II Jam Puncak Sore Simpang Ngabean

[illegible]

## Formulir SIG- III Jam Puncak Sore Simpang Ngabean

|                                       |    |                                 |             |             |             |             |                   |
|---------------------------------------|----|---------------------------------|-------------|-------------|-------------|-------------|-------------------|
| SIMPANG BERSINYAL                     |    | Tanggal : 20 November 2020      |             |             |             |             |                   |
| Formulir SIG-III                      |    | Ditangani Oleh : Krisnandio     |             |             |             |             |                   |
| WAKTU ANTAR HIJAU<br>WAKTU HILANG     |    | Kota : Yogyakarta               |             |             |             |             |                   |
|                                       |    | Simpang : Ngabean               |             |             |             |             |                   |
|                                       |    | Perihal : 4 - Fase hijau awal   |             |             |             |             |                   |
| Berangkat                             |    | Lalu Lintas Datang              |             |             |             |             |                   |
| Kode                                  | VE | Kode                            | Utara       | Timur       | Selatan     | Barat       | Waktu Merah Semua |
|                                       |    | VA                              | 10          | 10          | 10          | 10          |                   |
| Utara                                 | 10 | Jarak Berangkat - Datang (m)    |             |             |             | 16+5-14     |                   |
|                                       |    | Waktu Berangkat - Datang (det)  |             |             |             | 1.6+0.5-1.4 | 0.7               |
| Timur                                 | 10 | Jarak Berangkat - Datang (m)    |             |             | 24+5-19     |             |                   |
|                                       |    | Waktu Berangkat - Datang (det)  |             |             | 2.4+0.5-1.9 |             | 1                 |
| Selatan                               | 10 | Jarak Berangkat - Datang (m)    | 47+5-34     |             |             |             |                   |
|                                       |    | Waktu Berangkat - Datang (det)  | 4.7+0.5-3.4 |             |             |             | 0.9               |
| Barat                                 | 10 | Jarak Berangkat - Datang (m)    |             | 38+5-36     |             |             |                   |
|                                       |    | Waktu Berangkat - Datang (det)  |             | 3.8+0.5-3.6 |             |             | 0.8               |
| Penentuan Waktu Merah Semua           |    |                                 |             |             |             |             |                   |
| Fase 1 → Fase 2                       |    |                                 |             |             |             |             |                   |
| Fase 2 → Fase 3                       |    |                                 |             |             |             |             |                   |
| Fase 3 → Fase 4                       |    |                                 |             |             |             |             |                   |
| Fase 4 → Fase 1                       |    |                                 |             |             |             |             |                   |
| Waktu Kuning Total                    |    |                                 |             |             |             |             |                   |
| Waktu Hilang Total (LTI)= Merah semua |    | Total+Waktu kuning (det/siklus) |             |             |             |             |                   |
|                                       |    | 12                              |             |             |             |             |                   |
|                                       |    | 20                              |             |             |             |             |                   |



## Formulir SIG- V Jam Puncak Sore Simpang Ngabean

| SIMPANG BERSINYAL<br>Formulir SIG V                     |                          |                   |                      | Tanggal :                   |                        |                 |                                                | Ditangani oleh : Krisnandio S P |                           |                                         |                                  |                                          |                           |                       |        |       |
|---------------------------------------------------------|--------------------------|-------------------|----------------------|-----------------------------|------------------------|-----------------|------------------------------------------------|---------------------------------|---------------------------|-----------------------------------------|----------------------------------|------------------------------------------|---------------------------|-----------------------|--------|-------|
|                                                         |                          |                   |                      | Kota : Yogyakarta           |                        |                 |                                                | Perihal : 4 Fase                |                           |                                         |                                  |                                          |                           |                       |        |       |
|                                                         |                          |                   |                      | Simpang : Simpang 4 Ngabean |                        |                 |                                                | Periode : Jam Puncak Sore       |                           |                                         |                                  |                                          |                           |                       |        |       |
|                                                         |                          |                   |                      | Waktu siklus : 124 detik    |                        |                 |                                                |                                 |                           |                                         |                                  |                                          |                           |                       |        |       |
|                                                         |                          |                   |                      |                             |                        |                 |                                                |                                 |                           |                                         |                                  |                                          |                           |                       |        |       |
| PANJANG ANTRIAN<br>JUMLAH KENDARAAN TERHENTI<br>TUNDAAN |                          |                   |                      |                             |                        |                 |                                                |                                 |                           |                                         |                                  |                                          |                           |                       |        |       |
| Kode Pendekat                                           | Arus lalu lintas smp/jam | Kapasitas smp/jam | Derajat kejenuhan DS | Rasio hijau GR              | Jumlah kendaraan antri |                 |                                                | Rasio kendaraan stop/smp        | Jumlah kendaraan terhenti | Tundaan                                 |                                  |                                          |                           |                       |        |       |
|                                                         |                          |                   |                      |                             | NQ <sub>1</sub>        | NQ <sub>2</sub> | Total NQ <sub>1</sub> +NQ <sub>2</sub><br>= NQ |                                 |                           | Panjang antrian (m)                     | Tundaan lintas rata-rata det/smp | Tundaan geometri rata-rata det/smp       | Tundaan rata-rata det/smp | Tundaan total det.smp |        |       |
| U                                                       | 1595                     | 1808              | 0.88                 | 0.36                        | 3.2                    | 51.5            | 54.6                                           | 79.0                            | QL                        | NS                                      | Nsv                              | DT                                       | DG                        | D=DT+DG               | D x Q  | 75354 |
| T                                                       | 544                      | 537               | 1.01                 | 0.22                        | 13.7                   | 18.8            | 32.5                                           | 46.0                            | 307                       | 1.56                                    | 849                              | 140.4                                    | 5.8                       | 146.2                 | 79584  |       |
| S                                                       | 362                      | 341               | 1.06                 | 0.15                        | 16.5                   | 12.6            | 29.1                                           | 42.0                            | 175                       | 2.10                                    | 760                              | 227.2                                    | 1.8                       | 229.0                 | 82882  |       |
| B                                                       | 104                      | 173               | 0.60                 | 0.10                        | 0.2                    | 3.4             | 3.7                                            | 8.0                             | 53                        | 0.92                                    | 96                               | 58.2                                     | 4.2                       | 62.4                  | 6463   |       |
| BST                                                     | 530                      | 569               | 0.93                 | 0.36                        | 5.0                    | 17.6            | 22.6                                           | 35.0                            | 194                       | 1.11                                    | 590                              | 69.8                                     | 3.8                       | 73.6                  | 38983  |       |
| Arus kor.<br>Q kor                                      |                          |                   |                      |                             |                        |                 |                                                |                                 |                           | TOTAL                                   | 3722                             |                                          |                           | TOTAL                 | 288054 |       |
| Arus total<br>Q tot                                     | 3933                     |                   |                      |                             |                        |                 |                                                |                                 |                           | Kendaraan terhenti rata-rata stop/smp : | 0.947                            | Tundaan simpang rata-rata :<br>(det/smp) |                           |                       | 73.2   |       |



## Formulir SIG- II Perencanaan 1 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL |       |                       | Tanggal :                                |                      |    | Ditangani oleh : Krisnandio S P |    |                      |     |            |      |                                             |      |            |                         |                |           |                         |                                               |
|-------------------|-------|-----------------------|------------------------------------------|----------------------|----|---------------------------------|----|----------------------|-----|------------|------|---------------------------------------------|------|------------|-------------------------|----------------|-----------|-------------------------|-----------------------------------------------|
| Formulir SIG-II   |       |                       | Kota : Yogyakarta                        |                      |    | Perihal : 4 Fase                |    |                      |     |            |      |                                             |      |            |                         |                |           |                         |                                               |
| ARUS LALU LINTAS  |       |                       | Periode : Jam Puncak Sore                |                      |    | Periode : Jam Puncak Sore       |    |                      |     |            |      |                                             |      |            |                         |                |           |                         |                                               |
|                   |       |                       | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |                      |    |                                 |    |                      |     |            |      |                                             |      |            | KEND. TAK BERMOTOR (UM) |                |           |                         |                                               |
| Kode Pendekat     | Arah  | Kendaraan Ringan (LV) |                                          | Kendaraan Berat (HV) |    |                                 |    | Sepeda Motor (MC)    |     |            |      | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |      |            |                         | Rasio Berbelok |           | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) / (Q <sub>MV</sub> ) |
|                   |       | emp terlindung = 1,0  |                                          | emp terlindung = 1,3 |    | emp terlindung = 0,2            |    | emp terlindung = 0,4 |     | smp / jam  |      | smp / jam                                   |      | PLTOR      |                         | PRT            |           |                         |                                               |
|                   |       | emp terlawan = 1,0    |                                          | emp terlawan = 1,3   |    | emp terlawan = 0,4              |    | kend/jam             |     | kend/jam   |      | kend/jam                                    |      | terlindung |                         |                | terlawan  |                         |                                               |
|                   |       | kend/jam              |                                          | smp / jam            |    | kend/jam                        |    | smp / jam            |     | kend/jam   |      | smp / jam                                   |      | kend/jam   |                         |                | smp / jam |                         | terlawan                                      |
|                   |       | terlindung            |                                          | terlawan             |    | terlindung                      |    | terlawan             |     | terlindung |      | terlawan                                    |      | terlindung |                         | terlawan       |           | terlindung              |                                               |
| U                 | LT    | 49                    | 49                                       | 49                   | 2  | 3                               | 3  | 282                  | 56  | 113        | 333  | 108                                         | 164  | 4          |                         |                |           |                         |                                               |
|                   | ST    | 219                   | 219                                      | 219                  | 3  | 4                               | 4  | 1328                 | 266 | 531        | 1550 | 489                                         | 754  | 12         |                         |                |           |                         |                                               |
|                   | RT    | 224                   | 224                                      | 224                  | 7  | 9                               | 9  | 983                  | 197 | 393        | 1214 | 430                                         | 626  | 2          |                         | 0.42           |           |                         |                                               |
|                   | Total | 492                   | 492                                      | 492                  | 12 | 16                              | 16 | 2593                 | 519 | 1037       | 3097 | 1026                                        | 1545 | 18         | 0.01                    |                |           |                         |                                               |
| T                 | LT    | 95                    | 95                                       | 95                   | 1  | 1                               | 1  | 1026                 | 205 | 410        | 1122 | 302                                         | 507  | 14         |                         |                |           |                         |                                               |
|                   | ST    | 200                   | 200                                      | 200                  | 12 | 16                              | 16 | 1268                 | 254 | 507        | 1480 | 469                                         | 723  | 19         |                         |                |           |                         |                                               |
|                   | RT    | 156                   | 156                                      | 156                  | 13 | 17                              | 17 | 481                  | 96  | 192        | 650  | 269                                         | 365  | 9          |                         | 0.26           |           |                         |                                               |
|                   | Total | 451                   | 451                                      | 451                  | 26 | 34                              | 34 | 2775                 | 555 | 1110       | 3252 | 1040                                        | 1595 | 42         | 0.01                    |                |           |                         |                                               |
| S                 | LT    | 83                    | 83                                       | 83                   | 7  | 9                               | 9  | 799                  | 160 | 320        | 889  | 252                                         | 412  | 11         |                         |                |           |                         |                                               |
|                   | ST    | 165                   | 165                                      | 165                  | 9  | 12                              | 12 | 784                  | 157 | 314        | 958  | 334                                         | 490  | 5          |                         |                |           |                         |                                               |
|                   | RT    | 32                    | 32                                       | 32                   | 0  | 0                               | 0  | 200                  | 40  | 80         | 232  | 72                                          | 112  | 1          |                         | 0.11           |           |                         |                                               |
|                   | Total | 280                   | 280                                      | 280                  | 16 | 21                              | 21 | 1783                 | 357 | 713        | 2079 | 657                                         | 1014 | 17         | 0.01                    |                |           |                         |                                               |
| B                 | LT    | 375                   | 375                                      | 375                  | 10 | 13                              | 13 | 1643                 | 329 | 657        | 2028 | 717                                         | 1045 | 13         |                         | 0.47           |           |                         |                                               |
|                   | ST    | 200                   | 200                                      | 200                  | 7  | 9                               | 9  | 989                  | 198 | 396        | 1196 | 407                                         | 605  | 10         |                         |                |           |                         |                                               |
|                   | RT    | 204                   | 204                                      | 204                  | 2  | 3                               | 3  | 903                  | 181 | 361        | 1109 | 387                                         | 568  | 11         |                         | 0.26           |           |                         |                                               |
|                   | Total | 779                   | 779                                      | 779                  | 19 | 25                              | 25 | 3535                 | 707 | 1414       | 4333 | 1511                                        | 2218 | 34         | 0.01                    |                |           |                         |                                               |

## Formulir SIG- III Perencanaan 1 untuk Simpang Wirobrajan

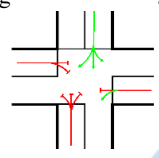
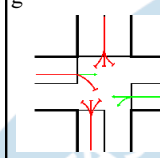
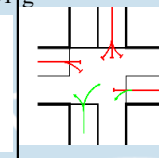
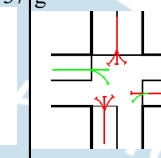
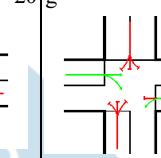
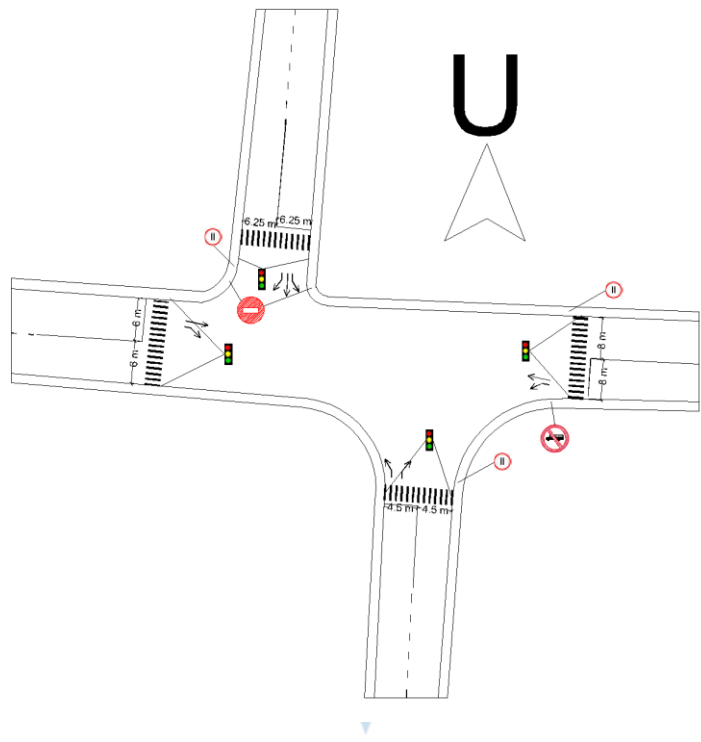
|                                                                       |    |                                |             |             |             |             |                   |
|-----------------------------------------------------------------------|----|--------------------------------|-------------|-------------|-------------|-------------|-------------------|
| SIMPANG BERSINYAL                                                     |    | Tanggal : 20 November 2020     |             |             |             |             |                   |
| Formulir SIG-III                                                      |    | Ditangani Oleh : Krisnandio    |             |             |             |             |                   |
| WAKTU ANTAR HIJAU                                                     |    | Kota : Yogyakarta              |             |             |             |             |                   |
| WAKTU HILANG                                                          |    | Simpang : Wirobrajan           |             |             |             |             |                   |
|                                                                       |    | Perihal : 4 - Fase hijau awal  |             |             |             |             |                   |
| Berangkat                                                             |    | Lalu Lintas Datang             |             |             |             |             |                   |
| Kode                                                                  | VE | Kode                           | Utara       | Timur       | Selatan     | Barat       | Waktu Merah Semua |
|                                                                       |    | VA                             | 10          | 10          | 10          | 10          |                   |
| Utara                                                                 | 10 | Jarak Berangkat - Datang (m)   |             | 22+5-17     |             |             |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) |             | 2.2+0.5-1.7 |             |             | 1                 |
| Timur                                                                 | 10 | Jarak Berangkat - Datang (m)   |             |             | 24+5-21     |             |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) |             |             | 2.4+0.5-2.1 |             | 0.8               |
| Selatan                                                               | 10 | Jarak Berangkat - Datang (m)   |             |             |             | 29+5-22     |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) |             |             |             | 2.9+0.5-2.2 | 1.2               |
| Barat                                                                 | 10 | Jarak Berangkat - Datang (m)   | 29+5-15     |             |             |             |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) | 2.9+0.5-1.5 |             |             |             | 1.9               |
| Penentuan Waktu Merah Semua                                           |    |                                |             |             |             |             |                   |
| Fase 1 → Fase 2                                                       |    | 2                              |             |             |             |             |                   |
| Fase 2 → Fase 3                                                       |    | 2                              |             |             |             |             |                   |
| Fase 3 → Fase 4                                                       |    | 2                              |             |             |             |             |                   |
| Fase 4 → Fase 1                                                       |    | 2                              |             |             |             |             |                   |
| Waktu Kuning Total                                                    |    | 12                             |             |             |             |             |                   |
| Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |    | 20                             |             |             |             |             |                   |

## Formulir SIG- IV Perencanaan 1 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL                     |                      |               | Tanggal :                      |                                        | Ditangani oleh : Krisnandio S.P. |                           |                                      |                  |            |        |                          |                 |                 |                   |                       |                        |     |      |
|---------------------------------------|----------------------|---------------|--------------------------------|----------------------------------------|----------------------------------|---------------------------|--------------------------------------|------------------|------------|--------|--------------------------|-----------------|-----------------|-------------------|-----------------------|------------------------|-----|------|
| Formulir SIG-IV                       |                      |               | Kota : Yogyakarta              |                                        | Perihal : 4 Fase                 |                           |                                      |                  |            |        |                          |                 |                 |                   |                       |                        |     |      |
| PENENTUAN WAKTU SINYAL                |                      |               | Simpang : Simpang 4 Wirobrajan |                                        | Periode : 1 jam Puncak Pagi      |                           |                                      |                  |            |        |                          |                 |                 |                   |                       |                        |     |      |
| KAPASITAS                             |                      |               |                                |                                        |                                  |                           |                                      |                  |            |        |                          |                 |                 |                   |                       |                        |     |      |
| Distribusi arus lalu lintas (smp/jam) |                      |               | Fase 1                         |                                        | Fase 2                           |                           |                                      |                  |            |        |                          |                 |                 |                   |                       |                        |     |      |
| U ↑                                   |                      |               | Fase 3                         |                                        | Fase 4                           |                           |                                      |                  |            |        |                          |                 |                 |                   |                       |                        |     |      |
| Kode Pendekat                         | Hijau dalam fase no. | Tipe pendekat | Rasio kendaraan berbelok       | Arus RT (smp/jam)                      | Lebar efektif (m)                | Nilai dasar smp/jam hijau | Arus jenuh (smp/jam hijau)           |                  |            |        | Arus lalu lintas smp/jam | Rasio Arus (FR) | Rasio fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |     |      |
|                                       |                      |               |                                | Arah dari                              | Arah lawan                       |                           | Faktor-faktor penyesuaian            |                  |            |        |                          |                 |                 |                   |                       |                        |     |      |
|                                       |                      |               |                                |                                        |                                  |                           | Semua tipe pendekat                  |                  |            |        | Hanya tipe P             |                 |                 |                   |                       |                        |     |      |
|                                       |                      |               |                                |                                        |                                  |                           | Ukuran kota                          | Hambatan samping | Kelandaian | Parkir | Belok kanan              | Belok kiri      |                 |                   |                       |                        |     |      |
|                                       |                      |               |                                |                                        |                                  |                           | Fes                                  | Fsf              | Fg         | Fp     | FRT                      | FLT             | S               | Q                 | FRIT / IFR            |                        |     |      |
| U                                     | 1                    | P             |                                |                                        |                                  | 6.9                       | 0.83                                 | 0.94             | 100        | 100    | 1.11                     | 0.98            | 3506            | 98                | 0.297                 | 55                     | 955 | 0.96 |
| T                                     | 2                    | P             |                                |                                        |                                  | 6.6                       | 0.83                                 | 0.94             | 100        | 100    | 1.07                     | 0.95            | 351             | 738               | 0.268                 | 49                     | 760 | 0.97 |
| S                                     | 3                    | P             |                                |                                        |                                  | 6.3                       | 0.83                                 | 0.94             | 100        | 100    | 1.03                     | 0.94            | 2835            | 406               | 0.162                 | 29                     | 407 | 1.00 |
| B                                     | 4                    | P             |                                |                                        |                                  | 7.2                       | 0.83                                 | 0.94             | 100        | 100    | 1.07                     | 0.92            | 3308            | 794               | 0.273                 | 49                     | 802 | 0.99 |
| Waktu hilang total LTI                |                      |               | 20                             | Waktu siklus pra penyesuaian cua (det) |                                  |                           | Waktu siklus pra penyesuaian c (det) |                  |            |        | IFR =                    |                 | ΣFRIT           |                   |                       |                        |     |      |
| (det)                                 |                      |               |                                | 202                                    |                                  |                           |                                      |                  |            |        | 0.881                    |                 |                 |                   |                       |                        |     |      |



## Formulir SIG- I Perencanaan 1 untuk Simpang Ngabean

| Lampiran 1. Data Kondisi Lapangan                                                   |                                                                                   | Tanggal :                                                                         |                                                                                   | Ditangani oleh : Krisnandio S.P.                                                    |                                     |                               |                         |                          |                                       |                            |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| Formulir SIG-I                                                                      |                                                                                   | Simpang : Simpang 4 Ngabean                                                       |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| GEOMETRI                                                                            |                                                                                   | Ukuran kota : 431.939 Jiwa                                                        |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS                                                              |                                                                                   | Perihal : 4 Fase                                                                  |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| LINGKUNGAN                                                                          |                                                                                   | Periode : Jam Puncak Sore                                                         |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| g = 74                                                                              | g = 51                                                                            | g = 37                                                                            | g = 20                                                                            | g = 76                                                                              | Waktu siklus:<br>c = 202            |                               |                         |                          |                                       |                            |
|    |  |  |  |  | Waktu hilang<br>total :<br>LTI = 20 |                               |                         |                          |                                       |                            |
| IG = 5                                                                              | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                              |                                     |                               |                         |                          |                                       |                            |
|  |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| Kode pendekat                                                                       | Tipe lingkungan jalan                                                             | Hambatan samping Tinggi / Rendah                                                  | Median Ya/Tidak                                                                   | Kelandaian +/- %                                                                    | Belok kiri langsung Ya/Tidak        | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | Y                                   | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST                                                                                 | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |

## Formulir SIG- II Perencanaan 1 untuk Simpang Ngabean

| SIMPANG BERSINYAL |       |                                          |            | Tanggal :                   |          |                      |            | Ditangani oleh : Krisnandio S P |          |            |          |                                             |            |           |          |                         |          |                         |                                             |
|-------------------|-------|------------------------------------------|------------|-----------------------------|----------|----------------------|------------|---------------------------------|----------|------------|----------|---------------------------------------------|------------|-----------|----------|-------------------------|----------|-------------------------|---------------------------------------------|
| Formulir SIG-II   |       |                                          |            | Kota : Yogyakarta           |          |                      |            | Perihal : 4 Fase                |          |            |          |                                             |            |           |          |                         |          |                         |                                             |
| ARUS LALU LINTAS  |       |                                          |            | Simpang : Simpang 4 Ngabean |          |                      |            | Periode : Jam Puncak Sore       |          |            |          |                                             |            |           |          |                         |          |                         |                                             |
|                   |       | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |            |                             |          |                      |            |                                 |          |            |          |                                             |            |           |          | KEND. TAK BERMOTOR (UM) |          |                         |                                             |
| Kode Pendekat     | Arah  | Kendaraan Ringan (LV)                    |            | Kendaraan Berat (HV)        |          |                      |            | Sepeda Motor (MC)               |          |            |          | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |            |           |          | Rasio Berbelok          |          | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |
|                   |       | emp terlindung = 1,0                     |            | emp terlindung = 1,3        |          | emp terlindung = 0,2 |            | emp terlindung = 0,4            |          | smp / jam  |          | smp / jam                                   |            | smp / jam |          | PLTOR                   | PRT      |                         |                                             |
|                   |       | emp terlawan = 1,0                       |            | emp terlawan = 1,3          |          |                      |            |                                 |          | kend/jam   |          | kend/jam                                    |            | kend/jam  |          |                         |          | kend / jam              |                                             |
|                   |       | smp / jam                                |            | smp / jam                   |          | smp / jam            |            | smp / jam                       |          | smp / jam  |          | smp / jam                                   |            | smp / jam |          | smp / jam               |          |                         |                                             |
|                   |       | kend/jam                                 | terlindung | terlindung                  | terlawan | kend/jam             | terlindung | terlawan                        | kend/jam | terlindung | terlawan | kend/jam                                    | terlindung | terlawan  | kend/jam | terlindung              | terlawan | kend / jam              |                                             |
| U                 | LT    | 185                                      | 185        | 8                           | 10       | 10                   | 1540       | 308                             | 616      | 1733       | 503      | 811                                         | 0.32       |           |          | 2                       |          |                         |                                             |
|                   | ST    | 268                                      | 268        | 12                          | 16       | 16                   | 1830       | 366                             | 732      | 2110       | 650      | 1016                                        |            |           |          | 11                      |          |                         |                                             |
|                   | RT    | 249                                      | 249        | 2                           | 3        | 3                    | 952        | 190                             | 381      | 1203       | 442      | 632                                         |            | 0.28      |          | 15                      |          |                         |                                             |
|                   | Total | 702                                      | 702        | 22                          | 29       | 29                   | 4322       | 864                             | 1729     | 5046       | 1595     | 2459                                        | 0.32       | 0.28      | 0.28     | 28                      | 0.01     |                         |                                             |
| T                 | LT    | 26                                       | 26         | 9                           | 12       | 12                   | 197        | 39                              | 79       | 232        | 77       | 117                                         | 0.12       |           |          | 11                      |          |                         |                                             |
|                   | ST    | 187                                      | 187        | 12                          | 16       | 16                   | 1709       | 342                             | 684      | 1908       | 544      | 886                                         |            |           |          | 5                       |          |                         |                                             |
|                   | RT    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           |            | 0.00      |          |                         |          |                         |                                             |
|                   | Total | 213                                      | 213        | 21                          | 27       | 27                   | 1906       | 381                             | 762      | 2140       | 622      | 1003                                        | 0.12       | 0.00      | 0.00     | 16                      | 0.01     |                         |                                             |
| S                 | LT    | 72                                       | 72         | 10                          | 13       | 13                   | 662        | 132                             | 265      | 744        | 217      | 350                                         | 0.60       |           |          | 10                      |          |                         |                                             |
|                   | ST    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           |            |           |          | 0                       |          |                         |                                             |
|                   | RT    | 75                                       | 75         | 7                           | 9        | 9                    | 302        | 60                              | 121      | 384        | 145      | 205                                         |            | 0.40      |          | 15                      |          |                         |                                             |
|                   | Total | 147                                      | 147        | 17                          | 22       | 22                   | 964        | 193                             | 386      | 1128       | 362      | 555                                         | 0.60       | 0.40      | 0.40     | 25                      | 0.02     |                         |                                             |
| B                 | LT    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           | 0.00       |           |          |                         |          |                         |                                             |
|                   | ST    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           |            |           |          |                         |          |                         |                                             |
|                   | RT    | 34                                       | 34         | 34                          | 0        | 0                    | 348        | 70                              | 139      | 382        | 104      | 173                                         |            | 1.00      |          | 1                       |          |                         |                                             |
|                   | Total | 34                                       | 34         | 34                          | 0        | 0                    | 348        | 70                              | 139      | 382        | 104      | 173                                         | 0.00       | 1.00      | 1.00     | 1                       | 0.00     |                         |                                             |
| BST               | LT    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           | 0.00       |           |          |                         |          |                         |                                             |
|                   | ST    | 256                                      | 256        | 256                         | 9        | 12                   | 1311       | 262                             | 524      | 1576       | 530      | 792                                         |            |           |          | 10                      |          |                         |                                             |
|                   | RT    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           |            | 0.00      |          |                         |          |                         |                                             |
|                   | Total | 256                                      | 256        | 256                         | 9        | 12                   | 1311       | 262                             | 524      | 1576       | 530      | 792                                         | 0.00       | 0.00      | 0.00     | 10                      | 0.01     |                         |                                             |

## Formulir SIG- III Perencanaan 1 untuk Simpang Ngabean

|                                                 |    |                                                                       |             |             |             |             |                   |    |
|-------------------------------------------------|----|-----------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------------|----|
| SIMPANG BERSINYAL                               |    | Tanggal : 20 November 2020                                            |             |             |             |             |                   |    |
| Formulir SIG-III                                |    | Ditangani Oleh : Krisnandio                                           |             |             |             |             |                   |    |
| <b>WAKTU ANTAR HIJAU</b><br><b>WAKTU HILANG</b> |    | Kota : Yogyakarta                                                     |             |             |             |             |                   |    |
|                                                 |    | Simpang : Ngabean                                                     |             |             |             |             |                   |    |
|                                                 |    | Perihal : 4 - Fase hijau awal                                         |             |             |             |             |                   |    |
| Berangkat                                       |    | Lalu Lintas Datang                                                    |             |             |             |             |                   |    |
| Kode                                            | VE | Kode                                                                  | Utara       | Timur       | Selatan     | Barat       | Waktu Merah Semua |    |
|                                                 |    | VA                                                                    | 10          | 10          | 10          | 10          |                   |    |
| Utara                                           | 10 | Jarak Berangkat - Datang (m)                                          |             |             |             | 16+5-14     |                   |    |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             |             |             | 1.6+0.5-1.4 | 0.7               |    |
| Timur                                           | 10 | Jarak Berangkat - Datang (m)                                          |             |             | 24+5-19     |             |                   |    |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             |             | 2.4+0.5-1.9 |             | 1                 |    |
| Selatan                                         | 10 | Jarak Berangkat - Datang (m)                                          | 47+5-34     |             |             |             |                   |    |
|                                                 |    | Waktu Berangkat - Datang (det)                                        | 4.7+0.5-3.4 |             |             |             | 0.9               |    |
| Barat                                           | 10 | Jarak Berangkat - Datang (m)                                          |             | 38+5-36     |             |             |                   |    |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             | 3.8+0.5-3.6 |             |             | 0.8               |    |
|                                                 |    | Penentuan Waktu Merah Semua                                           |             |             |             |             |                   |    |
|                                                 |    | Fase 1                                                                | →           | Fase 2      |             |             |                   | 2  |
|                                                 |    | Fase 2                                                                | →           | Fase 3      |             |             |                   | 2  |
|                                                 |    | Fase 3                                                                | →           | Fase 4      |             |             |                   | 2  |
|                                                 |    | Fase 4                                                                | →           | Fase 1      |             |             |                   | 2  |
|                                                 |    | Waktu Kuning Total                                                    |             |             |             |             |                   | 12 |
|                                                 |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |             |             |             |                   | 20 |

## Formulir SIG- IV Perencanaan 1 untuk Simpang Ngabean

| SIMPANG BERSINYAL                     |                      |               |                          | Tanggal :                                          |                   | Ditangani oleh : KSP                        |                            |                          |                 |                 |                   |                       |                        |      |       |                          |    |         |       |
|---------------------------------------|----------------------|---------------|--------------------------|----------------------------------------------------|-------------------|---------------------------------------------|----------------------------|--------------------------|-----------------|-----------------|-------------------|-----------------------|------------------------|------|-------|--------------------------|----|---------|-------|
| Formulir SIG-IV                       |                      |               |                          | Kota : Yogyakarta                                  |                   | Perihal : 4 Fase                            |                            |                          |                 |                 |                   |                       |                        |      |       |                          |    |         |       |
| PENENTUAN WAKTU SINYAL                |                      |               |                          | Simpang : Simpang 4 Ngabean                        |                   | Periode : Jam Puncak Sore                   |                            |                          |                 |                 |                   |                       |                        |      |       |                          |    |         |       |
| KAPASITAS                             |                      |               |                          |                                                    |                   |                                             |                            |                          |                 |                 |                   |                       |                        |      |       |                          |    |         |       |
| Distribusi arus lalu lintas (smp/jam) |                      |               |                          | Fase 1                                             |                   | Fase 2                                      |                            |                          |                 |                 |                   |                       |                        |      |       |                          |    |         |       |
| U ↑                                   |                      |               |                          | Fase 3                                             |                   | Fase 4                                      |                            |                          |                 |                 |                   |                       |                        |      |       |                          |    |         |       |
| Kode Pendekat                         | Hijau dalam fase no. | Tipe pendekat | Rasio kendaraan berbelok | Arus RT (smp/jam)                                  | Lebar efektif (m) | Nilai dasar smp/jam hijau                   | Arus jenuh (smp/jam hijau) | Arus lalu lintas smp/jam | Rasio Arus (FR) | Rasio fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |      |       |                          |    |         |       |
| PLTOR                                 | PLT                  | PRT           | QRT                      | QRT                                                | W <sub>e</sub>    | So                                          | F <sub>cs</sub>            | F <sub>sf</sub>          | F <sub>g</sub>  | F <sub>p</sub>  | F <sub>RT</sub>   | F <sub>LT</sub>       | S                      | Q    | Q/S   | Fr <sub>crit</sub> / IFR | g  | S x g/c | Q / C |
| U                                     | 1                    | P             | 0.32                     | 0.28                                               |                   | 10.5                                        | 0.83                       | 0.94                     | 100             | 100             | 107               | 0.95                  | 4982                   | 1595 | 0.320 | 0.290                    | 74 | 1825    | 0.87  |
| T                                     | 2                    | P             | 0.12                     | 0.00                                               |                   | 5.4                                         | 0.83                       | 0.94                     | 100             | 100             | 100               | 0.98                  | 2467                   | 544  | 0.221 | 0.200                    | 51 | 623     | 0.87  |
| S                                     | 4                    | P             | 0.60                     | 0.40                                               |                   | 4.8                                         | 0.83                       | 0.93                     | 100             | 100             | 110               | 0.90                  | 2223                   | 362  | 0.163 | 0.147                    | 37 | 407     | 0.89  |
| B                                     | 3                    | P             | 0.00                     | 1.00                                               |                   | 3                                           | 0.83                       | 0.94                     | 0.93            | 100             | 126               | 100                   | 1646                   | 104  | 0.063 | 0.057                    | 20 | 163     | 0.64  |
| BST                                   | 2 & 3                | P             | 0.00                     | 0.00                                               |                   | 3.6                                         | 0.83                       | 0.94                     | 0.93            | 100             | 100               | 100                   | 1567                   | 530  | 0.338 | 0.306                    | 76 | 590     | 0.90  |
| Waktu hilang total LTI (det)          |                      |               | 20                       | Waktu siklus pra penyesuaian c <sub>ua</sub> (det) |                   | Waktu siklus disesuaikan c <sub>(det)</sub> |                            | 202                      |                 | IFR = 1.05      |                   | ΣFR <sub>crit</sub>   |                        |      |       |                          |    |         |       |





## Formulir SIG- II Perencanaan 2 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL |       |                                            | Tanggal :                                |                                            | Ditangani oleh : Krisnandio S P |                                            |           |                                             |           |            |          |                |                         |                         |                          |    |      |
|-------------------|-------|--------------------------------------------|------------------------------------------|--------------------------------------------|---------------------------------|--------------------------------------------|-----------|---------------------------------------------|-----------|------------|----------|----------------|-------------------------|-------------------------|--------------------------|----|------|
| Formulir SIG-II   |       |                                            | Kota : Yogyakarta                        |                                            | Perihal : 4 Fase                |                                            |           |                                             |           |            |          |                |                         |                         |                          |    |      |
| ARUS LALU LINTAS  |       |                                            | Periode : Jam Puncak Sore                |                                            | Periode : Jam Puncak Sore       |                                            |           |                                             |           |            |          |                |                         |                         |                          |    |      |
|                   |       |                                            | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |                                            |                                 |                                            |           |                                             |           |            |          |                | KEND. TAK BERMOTOR (UM) |                         |                          |    |      |
| Kode Pendekat     | Arah  | Kendaraan Ringan (LV)                      |                                          | Kendaraan Berat (HV)                       |                                 | Sepeda Motor (MC)                          |           | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |           |            |          | Rasio Berbelok |                         | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) |    |      |
|                   |       | emp terlindung = 1,0<br>emp terlawan = 1,0 |                                          | emp terlindung = 1,3<br>emp terlawan = 1,3 |                                 | emp terlindung = 0,2<br>emp terlawan = 0,4 |           | kend/jam                                    |           | smp / jam  |          | PLTOR          | PRT                     |                         |                          |    |      |
|                   |       | kend/jam                                   | smp / jam                                | kend/jam                                   | smp / jam                       | kend/jam                                   | smp / jam | kend/jam                                    | smp / jam | terlindung | terlawan |                |                         | terlindung              | terlawan                 |    |      |
|                   |       | kend/jam                                   | terlindung                               | terlindung                                 | terlawan                        | terlindung                                 | terlawan  | terlindung                                  | terlawan  | terlindung | terlawan | terlindung     | terlawan                |                         |                          |    |      |
|                   |       | kend/jam                                   | terlindung                               | terlindung                                 | terlawan                        | terlindung                                 | terlawan  | terlindung                                  | terlawan  | terlindung | terlawan | terlindung     | terlawan                |                         |                          |    |      |
| U                 | LT    | 49                                         | 49                                       | 2                                          | 3                               | 282                                        | 56        | 113                                         | 333       | 108        | 164      | 4              |                         | 0.11                    |                          | 4  |      |
|                   | ST    | 219                                        | 219                                      | 3                                          | 4                               | 1328                                       | 266       | 531                                         | 1550      | 489        | 754      | 12             |                         |                         |                          | 12 |      |
|                   | RT    | 224                                        | 224                                      | 7                                          | 9                               | 983                                        | 197       | 393                                         | 1214      | 430        | 626      | 2              |                         | 0.42                    |                          | 2  |      |
|                   | Total | 492                                        | 492                                      | 12                                         | 16                              | 2593                                       | 519       | 1037                                        | 3097      | 1026       | 1545     | 18             |                         |                         |                          | 18 | 0.01 |
| T                 | LT    | 95                                         | 95                                       | 1                                          | 1                               | 1026                                       | 205       | 410                                         | 1122      | 302        | 507      | 14             |                         | 0.29                    |                          | 14 |      |
|                   | ST    | 200                                        | 200                                      | 12                                         | 16                              | 1268                                       | 254       | 507                                         | 1480      | 469        | 723      | 19             |                         |                         |                          | 19 |      |
|                   | RT    | 156                                        | 156                                      | 13                                         | 17                              | 481                                        | 96        | 192                                         | 650       | 269        | 365      | 9              |                         | 0.26                    |                          | 9  |      |
|                   | Total | 451                                        | 451                                      | 26                                         | 34                              | 2775                                       | 555       | 1110                                        | 3252      | 1040       | 1595     | 42             |                         |                         |                          | 42 | 0.01 |
| S                 | LT    | 83                                         | 83                                       | 7                                          | 9                               | 799                                        | 160       | 320                                         | 889       | 252        | 412      | 11             |                         | 0.38                    |                          | 11 |      |
|                   | ST    | 165                                        | 165                                      | 9                                          | 12                              | 784                                        | 157       | 314                                         | 958       | 334        | 490      | 5              |                         |                         |                          | 5  |      |
|                   | RT    | 32                                         | 32                                       | 0                                          | 0                               | 200                                        | 40        | 80                                          | 232       | 72         | 112      | 1              |                         | 0.11                    |                          | 1  |      |
|                   | Total | 280                                        | 280                                      | 16                                         | 21                              | 1783                                       | 357       | 713                                         | 2079      | 657        | 1014     | 17             |                         |                         |                          | 17 | 0.01 |
| B                 | LT    | 375                                        | 375                                      | 10                                         | 13                              | 1643                                       | 329       | 657                                         | 2028      | 717        | 1045     | 13             |                         | 0.47                    |                          | 13 |      |
|                   | ST    | 200                                        | 200                                      | 7                                          | 9                               | 989                                        | 198       | 396                                         | 1196      | 407        | 605      | 10             |                         |                         |                          | 10 |      |
|                   | RT    | 204                                        | 204                                      | 2                                          | 3                               | 903                                        | 181       | 361                                         | 1109      | 387        | 568      | 11             |                         | 0.26                    |                          | 11 |      |
|                   | Total | 779                                        | 779                                      | 19                                         | 25                              | 3535                                       | 707       | 1414                                        | 4333      | 1511       | 2218     | 34             |                         |                         |                          | 34 | 0.01 |

## Formulir SIG- III Perencanaan 2 untuk Simpang Wirobrajan

|                   |    |                                                                       |             |                       |             |                   |
|-------------------|----|-----------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|
| SIMPANG BERSINYAL |    | Tanggal                                                               |             | : 20 November 2020    |             |                   |
| Formulir SIG-III  |    | Ditangani Oleh                                                        |             | : Krisnandio          |             |                   |
| WAKTU ANTAR HIJAU |    | Kota                                                                  |             | : Yogyakarta          |             |                   |
| WAKTU HILANG      |    | Simpang                                                               |             | : Wirobrajan          |             |                   |
|                   |    | Perihal                                                               |             | : 4 - Fase hijau awal |             |                   |
| Berangkat         |    | Lalu Lintas Datang                                                    |             |                       |             | Waktu Merah Semua |
| Kode              | VE | Kode                                                                  | Utara       | Timur                 | Selatan     | Barat             |
|                   |    | VA                                                                    | 10          | 10                    | 10          | 10                |
| Utara             | 10 | Jarak Berangkat - Datang (m)                                          |             | 22+5-17               |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             | 2.2+0.5-1.7           |             | 1                 |
| Timur             | 10 | Jarak Berangkat - Datang (m)                                          |             |                       | 24+5-21     |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       | 2.4+0.5-2.1 | 0.8               |
| Selatan           | 10 | Jarak Berangkat - Datang (m)                                          |             |                       |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       |             |                   |
| Barat             | 10 | Jarak Berangkat - Datang (m)                                          | 29+5-15     |                       |             | 1.2               |
|                   |    | Waktu Berangkat - Datang (det)                                        | 2.9+0.5-1.5 |                       |             | 1.9               |
|                   |    | Penentuan Waktu Merah Semua                                           |             |                       |             |                   |
|                   |    | Fase 1                                                                | →           | Fase 2                |             | 2                 |
|                   |    | Fase 2                                                                | →           | Fase 3                |             | 2                 |
|                   |    | Fase 3                                                                | →           | Fase 4                |             | 2                 |
|                   |    | Fase 4                                                                | →           | Fase 1                |             | 2                 |
|                   |    | Waktu Kuning Total                                                    |             |                       |             | 12                |
|                   |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             | 20                |

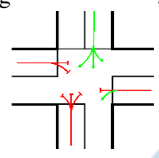
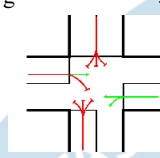
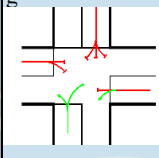
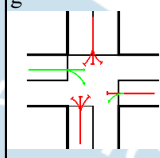
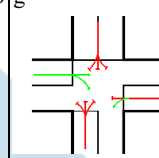
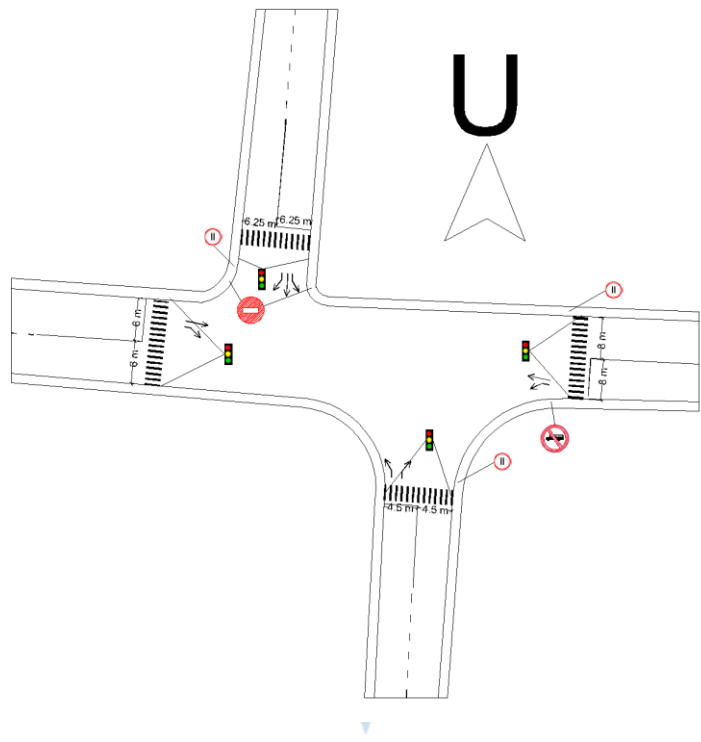
## Formulir SIG- IV Perencanaan 2 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL                     |                      |                          |                                      | Tanggal :                      |                                      | Ditangani oleh : Krisnandio SP. |                 |                            |                           |      |                   |     |                                 |                 |                 |                   |                       |                        |         |       |     |
|---------------------------------------|----------------------|--------------------------|--------------------------------------|--------------------------------|--------------------------------------|---------------------------------|-----------------|----------------------------|---------------------------|------|-------------------|-----|---------------------------------|-----------------|-----------------|-------------------|-----------------------|------------------------|---------|-------|-----|
| Formulir SIG-IV                       |                      |                          |                                      | Kota : Yogyakarta              |                                      | Perihal : 4 Fase                |                 |                            |                           |      |                   |     |                                 |                 |                 |                   |                       |                        |         |       |     |
| PENENTUAN WAKTU SINYAL                |                      |                          |                                      | Simpang : Simpang 4 Wirobrajan |                                      | Periode : Jam Puncak Sore       |                 |                            |                           |      |                   |     |                                 |                 |                 |                   |                       |                        |         |       |     |
| KAPASITAS                             |                      |                          |                                      |                                |                                      |                                 |                 |                            |                           |      |                   |     |                                 |                 |                 |                   |                       |                        |         |       |     |
| Distribusi arus lalu lintas (smp/jam) |                      | Fase 1                   |                                      | Fase 2                         |                                      | Fase 3                          |                 | Fase 4                     |                           |      |                   |     |                                 |                 |                 |                   |                       |                        |         |       |     |
| Kode Pendekat                         | Hijau dalam fase no. | Rasio kendaraan berbelok |                                      | Arus RT (smp/jam)              |                                      | Lebar efektif (m)               |                 | Arus jenuh (smp/jam hijau) |                           |      |                   |     |                                 |                 |                 |                   |                       |                        |         |       |     |
|                                       |                      | P <sub>LITOR</sub>       | P <sub>LT</sub>                      | P <sub>RT</sub>                | Q <sub>RT</sub>                      | Q <sub>RTO</sub>                | We              | Nilai dasar smp/jam hijau  | Faktor-faktor penyesuaian |      |                   |     |                                 |                 |                 |                   |                       |                        |         |       |     |
|                                       |                      |                          |                                      |                                |                                      |                                 |                 |                            | Semua tipe pendekat       |      | Hanya tipe P      |     | Nilai disesuaikan smp/jam hijau | Rasio Arus (FR) | Rasio fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |         |       |     |
|                                       |                      | F <sub>CS</sub>          | F <sub>FS</sub>                      | F <sub>G</sub>                 | F <sub>P</sub>                       | F <sub>RT</sub>                 | F <sub>LT</sub> | S                          | Q                         | Q/S  | Fr <sub>IFR</sub> | g   |                                 |                 |                 |                   |                       |                        | S x g/c | Q / C |     |
| U                                     | 1                    | P                        | 0.11                                 | 0.42                           |                                      |                                 | 6.9             | 4140                       | 0.83                      | 0.94 | 100               | 100 | 1.11                            | 0.98            | 3506            | 918               | 0.262                 | 0.297                  | 31      | 877   | 105 |
| T                                     | 2                    | P                        | 0.29                                 | 0.26                           |                                      |                                 | 6.6             | 3960                       | 0.83                      | 0.94 | 100               | 100 | 1.07                            | 0.95            | 3131            | 738               | 0.236                 | 0.268                  | 28      | 707   | 104 |
| S                                     | 3                    | P                        | 0.38                                 | 0.11                           |                                      |                                 | 6.3             | 3780                       | 0.83                      | 0.94 | 100               | 100 | 1.03                            | 0.94            | 2835            | 406               | 0.143                 | 0.162                  | 17      | 389   | 104 |
| B                                     | 4                    | P                        | 0.47                                 | 0.26                           |                                      |                                 | 7.2             | 4320                       | 0.83                      | 0.94 | 100               | 100 | 1.07                            | 0.92            | 3308            | 794               | 0.240                 | 0.273                  | 28      | 747   | 106 |
| Waktu hilang total LTI (det)          |                      | 20                       | Waktu siklus pra penyesuaian c (det) |                                | Waktu siklus pra penyesuaian c (det) |                                 | 24              |                            | IFR = 0.881               |      | ΣFRent            |     |                                 |                 |                 |                   |                       |                        |         |       |     |

## Formulir SIG- VII Perencanaan 2 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL         |                          |                   |                      | Tanggal :                      |                        | Ditangani oleh : Krisnandio S.P. |                                             |                   |                     |                          |                                         |                                       |                                       |                           |                        |  |       |        |
|---------------------------|--------------------------|-------------------|----------------------|--------------------------------|------------------------|----------------------------------|---------------------------------------------|-------------------|---------------------|--------------------------|-----------------------------------------|---------------------------------------|---------------------------------------|---------------------------|------------------------|--|-------|--------|
| Formulir SIG V            |                          |                   |                      | Kota : Yogyakarta              |                        | Perihal : 4 Fase                 |                                             |                   |                     |                          |                                         |                                       |                                       |                           |                        |  |       |        |
| PANJANG ANTRIAN           |                          |                   |                      | Simpang : Simpang 4 Wirobrajan |                        | Periode : Jam Puncak Sore        |                                             |                   |                     |                          |                                         |                                       |                                       |                           |                        |  |       |        |
| JUMLAH KENDARAAN TERHENTI |                          |                   |                      | Waktu siklus : 124 detik       |                        |                                  |                                             |                   |                     |                          |                                         |                                       |                                       |                           |                        |  |       |        |
| TUNDAAN                   |                          |                   |                      |                                |                        |                                  |                                             |                   |                     |                          |                                         |                                       |                                       |                           |                        |  |       |        |
| Kode Pendekat             | Arus lalu lintas smp/jam | Kapasitas smp/jam | Derajat kejenuhan DS | Rasio hijau GR                 | Jumlah kendaraan antri |                                  |                                             |                   | Panjang antrian (m) | Rasio kendaraan stop/smp | Jumlah kendaraan terhenti               | Tundaan                               |                                       |                           |                        |  |       |        |
|                           |                          |                   |                      |                                | NQ <sub>1</sub>        | NQ <sub>2</sub>                  | Total NQ <sub>1</sub> +NQ <sub>2</sub> = NQ | NQ <sub>MAX</sub> |                     |                          |                                         | Tundaan lalu lintas rata-rata det/smp | Tundaan geometri rata-rata det/smp    | Tundaan rata-rata det/smp | Tundaan total det. smp |  |       |        |
|                           | Q                        | C                 | Q/C                  | g/c                            | 29.1                   | 32.1                             | 61.2                                        | 94.0              | QL                  | NS                       | Nsv                                     | DT                                    | DG                                    | D=DT+DG                   | D x Q                  |  |       |        |
| U                         | 918                      | 877               | 1.05                 | 0.25                           | 29.1                   | 32.1                             | 61.2                                        | 94.0              | 470                 | 1.74                     | 1599                                    | 166.6                                 | 4.6                                   | 171.2                     | 157217                 |  |       |        |
| T                         | 738                      | 707               | 1.04                 | 0.23                           | 23.7                   | 25.8                             | 49.5                                        | 69.0              | 383                 | 1.75                     | 1293                                    | 169.5                                 | 4.5                                   | 174.0                     | 128493                 |  |       |        |
| S                         | 406                      | 389               | 1.04                 | 0.14                           | 15.3                   | 14.1                             | 29.4                                        | 42.0              | 233                 | 1.89                     | 767                                     | 195.7                                 | 4.9                                   | 200.6                     | 81338                  |  |       |        |
| B                         | 794                      | 747               | 1.06                 | 0.23                           | 30.5                   | 27.9                             | 58.3                                        | 83.0              | 346                 | 1.92                     | 1524                                    | 195.7                                 | 3.6                                   | 199.3                     | 158303                 |  |       |        |
| LTOR (Semua)              | 1378                     |                   |                      |                                |                        |                                  |                                             |                   |                     |                          |                                         | 0                                     | 6                                     | 6                         | 8268                   |  |       |        |
| Arus kor. Q kor           |                          |                   |                      |                                | TOTAL                  |                                  |                                             |                   |                     |                          |                                         |                                       |                                       |                           | 5184                   |  | TOTAL | 533619 |
| Arus total Qtot           | 4234                     |                   |                      |                                |                        |                                  |                                             |                   |                     |                          | Kendaraan terhenti rata-rata stop/smp : | 1.224                                 | Tundaan simpang rata-rata : (det/smp) |                           | 126.0                  |  |       |        |
|                           |                          |                   |                      |                                |                        |                                  |                                             |                   |                     |                          |                                         |                                       |                                       |                           |                        |  |       |        |

## Formulir SIG- I Perencanaan 2 untuk Simpang Ngabean

| Lampiran 1. Data Kondisi Lapangan                                                   |                                                                                   | Tanggal :                                                                         |                                                                                    | Ditangani oleh : Krisnandio S.P.                                                    |                                     |                               |                         |                          |                                       |                            |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| Formulir SIG-I                                                                      |                                                                                   | Simpang : Simpang 4 Ngabean                                                       |                                                                                    |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| GEOMETRI                                                                            |                                                                                   | Ukuran kota : 431.939 Jiwa                                                        |                                                                                    |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS                                                              |                                                                                   | Perihal : 4 Fase                                                                  |                                                                                    |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| LINGKUNGAN                                                                          |                                                                                   | Periode : Jam Puncak Sore                                                         |                                                                                    |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA                                                                |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| g = 74                                                                              | g = 51                                                                            | g = 37                                                                            | g = 20                                                                             | g = 76                                                                              | Waktu siklus:<br>c = 202            |                               |                         |                          |                                       |                            |
|    |  |  |  |  | Waktu hilang<br>total :<br>LTI = 20 |                               |                         |                          |                                       |                            |
| IG = 5                                                                              | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                             | IG = 5                                                                              |                                     |                               |                         |                          |                                       |                            |
|  |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                                                                    |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| Kode pendekat                                                                       | Tipe lingkungan jalan                                                             | Hambatan samping Tinggi / Rendah                                                  | Median Ya/Tidak                                                                    | Kelandaian +/- %                                                                    | Belok kiri langsung Ya/Tidak        | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                                                                     |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                     |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                  |                                                                                     | T                                   | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                  |                                                                                     | Y                                   | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                  |                                                                                     | T                                   | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                  |                                                                                     | T                                   | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST                                                                                 | COM                                                                               | Tinggi                                                                            | T                                                                                  |                                                                                     | T                                   | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |



## Formulir SIG- III Perencanaan 2 untuk Simpang Ngabean

|                                                 |    |                                                                       |             |                       |             |                   |       |
|-------------------------------------------------|----|-----------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|-------|
| SIMPANG BERSINYAL                               |    | Tanggal                                                               |             | : 20 November 2020    |             |                   |       |
| Formulir SIG-III                                |    | Ditangani Oleh                                                        |             | : Krisnandio          |             |                   |       |
| <b>WAKTU ANTAR HIJAU</b><br><b>WAKTU HILANG</b> |    | Kota                                                                  |             | : Yogyakarta          |             |                   |       |
|                                                 |    | Simpang                                                               |             | : Ngabean             |             |                   |       |
|                                                 |    | Perihal                                                               |             | : 4 - Fase hijau awal |             |                   |       |
| Berangkat                                       |    | Lalu Lintas Datang                                                    |             |                       |             | Waktu Merah Semua |       |
| Kode                                            | VE | Kode                                                                  | Utara       | Timur                 | Selatan     |                   | Barat |
|                                                 |    | VA                                                                    | 10          | 10                    | 10          | 10                |       |
| Utara                                           | 10 | Jarak Berangkat - Datang (m)                                          |             |                       |             | 16+5-14           | 0.7   |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             |                       |             | 1.6+0.5-1.4       |       |
| Timur                                           | 10 | Jarak Berangkat - Datang (m)                                          |             |                       | 24+5-19     |                   | 1     |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             |                       | 2.4+0.5-1.9 |                   |       |
| Selatan                                         | 10 | Jarak Berangkat - Datang (m)                                          | 47+5-34     |                       |             |                   | 0.9   |
|                                                 |    | Waktu Berangkat - Datang (det)                                        | 4.7+0.5-3.4 |                       |             |                   |       |
| Barat                                           | 10 | Jarak Berangkat - Datang (m)                                          |             | 38+5-36               |             |                   | 0.8   |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             | 3.8+0.5-3.6           |             |                   |       |
|                                                 |    | Penentuan Waktu Merah Semua                                           |             |                       |             |                   | 2     |
|                                                 |    | Fase 1                                                                | →           | Fase 2                |             |                   |       |
|                                                 |    | Fase 2                                                                | →           | Fase 3                |             |                   | 2     |
|                                                 |    | Fase 3                                                                | →           | Fase 4                |             |                   | 2     |
|                                                 |    | Fase 4                                                                | →           | Fase 1                |             |                   | 2     |
|                                                 |    | Waktu Kuning Total                                                    |             |                       |             |                   | 12    |
|                                                 |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             |                   | 20    |

## Formulir SIG- IV Perencanaan 2 untuk Simpang Ngabean

| SIMPANG BERSINYAL                               |                      |                             |                  | Tanggal :                              |                  | Ditangani oleh : KSP                 |                     |                            |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
|-------------------------------------------------|----------------------|-----------------------------|------------------|----------------------------------------|------------------|--------------------------------------|---------------------|----------------------------|--------------|----------------------|-----------------|----------------------|-------------------|-----------------------|------------------------|--------|-------------|------------|-------|------|------|------|
| Formulir SIG-IV                                 |                      |                             |                  | Kota : Yogyakarta                      |                  | Perihal : 4 Fase                     |                     |                            |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
| PENENTUAN WAKTU SINYAL                          |                      |                             |                  | Simpang : Simpang 4 Ngebean            |                  | Periode : lam Puncak Sore            |                     |                            |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
| KAPASITAS                                       |                      |                             |                  |                                        |                  |                                      |                     |                            |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
| Distribusi arus lalu lintas<br>(smp/jam)<br>U ↑ |                      | Fase 1                      |                  | Fase 2                                 |                  | Fase 3                               |                     | Fase 4                     |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
|                                                 |                      | Rasio kendaraan<br>berbelok |                  | Arus RT<br>(smp/jam)                   |                  | Lebar efektif<br>(m)                 |                     | Arus jenuh (smp/jam hijau) |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
|                                                 |                      |                             |                  |                                        |                  |                                      |                     |                            |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
|                                                 |                      |                             |                  |                                        |                  |                                      |                     |                            |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
|                                                 |                      |                             |                  |                                        |                  |                                      |                     |                            |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
| Kode Pendekat                                   | Hijau dalam fase no. | Tipe pendekat               |                  |                                        |                  |                                      |                     |                            |              | Rasio Arus fase (PR) | Rasio Arus (FR) | Rasio Arus fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |        |             |            |       |      |      |      |
|                                                 |                      | Rasio kendaraan berbelok    |                  | Arus RT (smp/jam)                      |                  | Lebar efektif (m)                    |                     | Nilai dasar smp/jam hijau  |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
|                                                 |                      | P <sub>L/TOR</sub>          | P <sub>L/T</sub> | P <sub>R/T</sub>                       | Q <sub>R/T</sub> | W <sub>e</sub>                       | Semua tipe pendekat |                            | Hanya tipe P |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
|                                                 |                      |                             |                  |                                        |                  |                                      | Ukuran kota         | Hambatan samping           | Kelandaian   |                      |                 |                      |                   |                       |                        | Parkir | Belok kanan | Belok kiri |       |      |      |      |
|                                                 |                      |                             |                  |                                        |                  |                                      |                     |                            |              |                      |                 |                      |                   |                       |                        |        |             |            |       |      |      |      |
| U                                               | 1                    | P                           | 0.32             | 0.28                                   |                  |                                      | 10.5                | 6300                       | 0.83         | 0.94                 | 100             | 100                  | 107               | 0.95                  | 4982                   | 1595   | 0.320       | 0.290      | 74    | 1825 | 0.87 |      |
| T                                               | 2                    | P                           |                  | 0.12                                   | 0.00             |                                      |                     | 5.4                        | 3240         | 0.83                 | 0.94            | 100                  | 100               | 100                   | 0.98                   | 2467   | 544         | 0.221      | 0.200 | 51   | 623  | 0.87 |
| S                                               | 4                    | P                           |                  | 0.60                                   | 0.40             |                                      |                     | 4.8                        | 2880         | 0.83                 | 0.93            | 100                  | 100               | 110                   | 0.90                   | 2223   | 362         | 0.163      | 0.147 | 37   | 407  | 0.89 |
| B                                               | 3                    | P                           |                  | 0.00                                   | 100              |                                      |                     | 3                          | 1800         | 0.83                 | 0.94            | 100                  | 100               | 126                   | 100                    | 1646   | 104         | 0.063      | 0.057 | 20   | 163  | 0.64 |
| BST                                             | 2 & 3                | P                           |                  | 0.00                                   | 0.00             |                                      |                     | 3.6                        | 2160         | 0.83                 | 0.94            | 100                  | 100               | 100                   | 100                    | 1567   | 530         | 0.338      | 0.306 | 76   | 590  | 0.90 |
| Waktu hilang total LTI (det)                    |                      |                             | 20               | Waktu siklus pra penyesuaian cua (det) |                  | Waktu siklus pra penyesuaian c (det) |                     | 202                        |              | IFR = 1.105          |                 | ΣFRerit              |                   |                       |                        |        |             |            |       |      |      |      |





## Formulir SIG- II Perencanaan 1 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL |       |     | Tanggal :                                |           | Ditangani oleh : Krisnandio S P |           |                      |           |                      |           |                      |           |                                             |           |           |           |                |           |                         |                         |  |                                             |
|-------------------|-------|-----|------------------------------------------|-----------|---------------------------------|-----------|----------------------|-----------|----------------------|-----------|----------------------|-----------|---------------------------------------------|-----------|-----------|-----------|----------------|-----------|-------------------------|-------------------------|--|---------------------------------------------|
| Formulir SIG-II   |       |     | Kota : Yogyakarta                        |           | Perihal : 4 Fase                |           |                      |           |                      |           |                      |           |                                             |           |           |           |                |           |                         |                         |  |                                             |
| ARUS LALU LINTAS  |       |     | Simpang : Simpang 4 Ngabean              |           | Periode : Jam Puncak Sore       |           |                      |           |                      |           |                      |           |                                             |           |           |           |                |           |                         |                         |  |                                             |
| Arah              |       |     | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |           |                                 |           |                      |           |                      |           |                      |           |                                             |           |           |           |                |           |                         | KEND. TAK BERMOTOR (UM) |  |                                             |
|                   |       |     | Kendaraan Ringan (LV)                    |           | Kendaraan Berat (HV)            |           |                      |           | Sepeda Motor (MC)    |           |                      |           | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |           |           |           | Rasio Berbelok |           | Arus (Q <sub>UM</sub> ) |                         |  | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |
|                   |       |     |                                          |           | emp terlindung = 1,0            |           | emp terlindung = 1,3 |           | emp terlindung = 0,2 |           | emp terlindung = 0,4 |           | smp / jam                                   |           | smp / jam |           | PLTOR          |           |                         |                         |  |                                             |
|                   |       |     | emp terlawan = 1,0                       |           | emp terlawan = 1,3              |           | emp terlawan = 0,2   |           | emp terlawan = 0,4   |           | smp / jam            |           | smp / jam                                   |           | smp / jam |           | smp / jam      |           | kend / jam              |                         |  |                                             |
|                   |       |     | kend/jam                                 | smp / jam | kend/jam                        | smp / jam | kend/jam             | smp / jam | kend/jam             | smp / jam | kend/jam             | smp / jam | kend/jam                                    | smp / jam | kend/jam  | smp / jam | kend/jam       | smp / jam | kend / jam              |                         |  | kend / jam                                  |
| U                 | LT    | 185 | 185                                      | 8         | 10                              | 10        | 1540                 | 308       | 616                  | 1733      | 503                  | 811       | 0.32                                        |           |           | 2         |                |           |                         |                         |  |                                             |
|                   | ST    | 268 | 268                                      | 12        | 16                              | 16        | 1830                 | 366       | 732                  | 2110      | 650                  | 1016      |                                             |           |           | 11        |                |           |                         |                         |  |                                             |
|                   | RT    | 249 | 249                                      | 2         | 3                               | 3         | 952                  | 190       | 381                  | 1203      | 442                  | 632       |                                             |           |           | 15        |                |           |                         |                         |  |                                             |
|                   | Total | 702 | 702                                      | 22        | 29                              | 29        | 4322                 | 864       | 1729                 | 5046      | 1595                 | 2459      | 0.32                                        | 0.28      | 0.28      | 28        | 0.01           |           |                         |                         |  |                                             |
| T                 | LT    | 26  | 26                                       | 9         | 12                              | 12        | 197                  | 39        | 79                   | 232       | 77                   | 117       | 0.12                                        |           |           | 11        |                |           |                         |                         |  |                                             |
|                   | ST    | 187 | 187                                      | 12        | 16                              | 16        | 1709                 | 342       | 684                  | 1908      | 544                  | 886       |                                             |           |           | 5         |                |           |                         |                         |  |                                             |
|                   | RT    | 0   | 0                                        | 0         | 0                               | 0         | 0                    | 0         | 0                    | 0         | 0                    | 0         |                                             |           |           | 0.00      |                |           |                         |                         |  |                                             |
|                   | Total | 213 | 213                                      | 21        | 27                              | 27        | 1906                 | 381       | 762                  | 2140      | 622                  | 1003      | 0.12                                        | 0.00      | 0.00      | 16        | 0.01           |           |                         |                         |  |                                             |
| S                 | LT    | 72  | 72                                       | 10        | 13                              | 13        | 662                  | 132       | 265                  | 744       | 217                  | 350       | 0.60                                        |           |           | 10        |                |           |                         |                         |  |                                             |
|                   | ST    | 0   | 0                                        | 0         | 0                               | 0         | 0                    | 0         | 0                    | 0         | 0                    | 0         |                                             |           |           | 0         |                |           |                         |                         |  |                                             |
|                   | RT    | 75  | 75                                       | 7         | 9                               | 9         | 302                  | 60        | 121                  | 384       | 145                  | 205       |                                             |           |           | 0.40      |                |           |                         |                         |  |                                             |
|                   | Total | 147 | 147                                      | 17        | 22                              | 22        | 964                  | 193       | 386                  | 1128      | 362                  | 555       | 0.60                                        | 0.40      | 0.40      | 25        | 0.02           |           |                         |                         |  |                                             |
| B                 | LT    | 0   | 0                                        | 0         | 0                               | 0         | 0                    | 0         | 0                    | 0         | 0                    | 0         | 0.00                                        |           |           |           |                |           |                         |                         |  |                                             |
|                   | ST    | 0   | 0                                        | 0         | 0                               | 0         | 0                    | 0         | 0                    | 0         | 0                    | 0         |                                             |           |           |           |                |           |                         |                         |  |                                             |
|                   | RT    | 34  | 34                                       | 0         | 0                               | 0         | 348                  | 70        | 139                  | 382       | 104                  | 173       |                                             |           |           | 1.00      | 1              |           |                         |                         |  |                                             |
|                   | Total | 34  | 34                                       | 0         | 0                               | 0         | 348                  | 70        | 139                  | 382       | 104                  | 173       | 0.00                                        | 1.00      | 1.00      | 1         | 0.00           |           |                         |                         |  |                                             |
| BST               | LT    | 0   | 0                                        | 0         | 0                               | 0         | 0                    | 0         | 0                    | 0         | 0                    | 0         | 0.00                                        |           |           |           |                |           |                         |                         |  |                                             |
|                   | ST    | 256 | 256                                      | 9         | 12                              | 12        | 1311                 | 262       | 524                  | 1576      | 530                  | 792       |                                             |           |           | 10        |                |           |                         |                         |  |                                             |
|                   | RT    | 0   | 0                                        | 0         | 0                               | 0         | 0                    | 0         | 0                    | 0         | 0                    | 0         |                                             |           |           | 0.00      |                |           |                         |                         |  |                                             |
|                   | Total | 256 | 256                                      | 9         | 12                              | 12        | 1311                 | 262       | 524                  | 1576      | 530                  | 792       | 0.00                                        | 0.00      | 0.00      | 10        | 0.01           |           |                         |                         |  |                                             |

## Formulir SIG- III Perencanaan 3 untuk Simpang Wirobrajan

|                   |    |                                                                       |             |                       |             |                   |
|-------------------|----|-----------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|
| SIMPANG BERSINYAL |    | Tanggal                                                               |             | : 20 November 2020    |             |                   |
| Formulir SIG-III  |    | Ditangani Oleh                                                        |             | : Krisnandio          |             |                   |
| WAKTU ANTAR HIJAU |    | Kota                                                                  |             | : Yogyakarta          |             |                   |
| WAKTU HILANG      |    | Simpang                                                               |             | : Wirobrajan          |             |                   |
|                   |    | Perihal                                                               |             | : 4 - Fase hijau awal |             |                   |
| Berangkat         |    | Lalu Lintas Datang                                                    |             |                       |             | Waktu Merah Semua |
| Kode              | VE | Kode                                                                  | Utara       | Timur                 | Selatan     | Barat             |
|                   |    | VA                                                                    | 10          | 10                    | 10          | 10                |
| Utara             | 10 | Jarak Berangkat - Datang (m)                                          |             | 22+5-17               |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             | 2.2+0.5-1.7           |             | 1                 |
| Timur             | 10 | Jarak Berangkat - Datang (m)                                          |             | 24+5-21               |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             | 2.4+0.5-2.1           |             | 0.8               |
| Selatan           | 10 | Jarak Berangkat - Datang (m)                                          |             |                       | 29+5-22     |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       | 2.9+0.5-2.2 | 1.2               |
| Barat             | 10 | Jarak Berangkat - Datang (m)                                          | 29+5-15     |                       |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        | 2.9+0.5-1.5 |                       |             | 1.9               |
|                   |    | Penentuan Waktu Merah Semua                                           |             |                       |             |                   |
|                   |    | Fase 1                                                                | →           | Fase 2                |             | 2                 |
|                   |    | Fase 2                                                                | →           | Fase 3                |             | 2                 |
|                   |    | Fase 3                                                                | →           | Fase 4                |             | 2                 |
|                   |    | Fase 4                                                                | →           | Fase 1                |             | 2                 |
|                   |    | Waktu Kuning Total                                                    |             |                       |             | 12                |
|                   |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             | 20                |

## Formulir SIG- IV Perencanaan 3 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL                               |                      | Tanggal :                      |                                      | Ditangani oleh : Krisnandio SP. |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
|-------------------------------------------------|----------------------|--------------------------------|--------------------------------------|---------------------------------|-------------------|----------------------------|---------------------------|---------------------------------|--------------------------|-----------------|-----------------|-------------------|-----------------------|------------------------|
| Formulir SIG-IV                                 |                      | Kota : Yogyakarta              |                                      | Perihal : 4 Fase                |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
| PENENTUAN WAKTU SINYAL                          |                      | Simpang : Simpang 4 Wirobrajan |                                      | Periode : Jam Puncak Pagi       |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
| KAPASITAS                                       |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
| Distribusi arus lalu lintas<br>(smp/jam)<br>U ↑ | Fase 1               | Fase 2                         | Fase 3                               | Fase 4                          |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
|                                                 |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
|                                                 |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
|                                                 |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
|                                                 |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
| Kode Pendekat                                   | Hijau dalam fase no. | Tipe pendekat                  | Rasio kendaraan berbelok             | Arus RT (smp/jam)               | Lebar efektif (m) | Arus jenuh (smp/jam hijau) | Nilai dasar smp/jam hijau | Nilai disesuaikan smp/jam hijau | Arus lalu lintas smp/jam | Rasio fase (PR) | Rasio arus (FR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |
|                                                 |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
|                                                 |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
|                                                 |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
|                                                 |                      |                                |                                      |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |
| U                                               | 1                    | P                              |                                      |                                 |                   |                            | 440                       | 3506                            | 918                      | 0.297           | 0.262           | 55                | 955                   | 0.96                   |
| T                                               | 2                    | P                              |                                      |                                 |                   |                            | 3960                      | 3131                            | 738                      | 0.268           | 0.236           | 49                | 760                   | 0.97                   |
| S                                               | 3                    | P                              |                                      |                                 |                   |                            | 3780                      | 2835                            | 406                      | 0.162           | 0.143           | 29                | 407                   | 1.00                   |
| B                                               | 4                    | P                              |                                      |                                 |                   |                            | 4320                      | 3308                            | 794                      | 0.273           | 0.240           | 49                | 802                   | 0.99                   |
| Waktu hilang total (det)                        |                      | 20                             | Waktu siklus pra penyesuaian c (det) |                                 | 202               |                            |                           |                                 | IFR = 0.881              |                 |                 |                   |                       |                        |
|                                                 |                      |                                | Waktu siklus pra penyesuaian c (det) |                                 |                   |                            |                           |                                 |                          |                 |                 |                   |                       |                        |



## Formulir SIG- I Perencanaan 3 untuk Simpang Ngabean

| Lampiran 1. Data Kondisi Lapangan |                       | Tanggal :                        |                 | Ditangani oleh : Krisnandio S.P. |                                     |                               |                         |                          |                                       |                            |
|-----------------------------------|-----------------------|----------------------------------|-----------------|----------------------------------|-------------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                 |                       |                                  |                 |                                  |                                     |                               |                         |                          |                                       |                            |
| Formulir SIG-I                    |                       | Simpang : Simpang 4 Ngabean      |                 |                                  |                                     |                               |                         |                          |                                       |                            |
| GEOMETRI                          |                       | Ukuran kota : 431.939 Jiwa       |                 |                                  |                                     |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS            |                       | Perihal : 4 Fase                 |                 |                                  |                                     |                               |                         |                          |                                       |                            |
| LINGKUNGAN                        |                       | Periode : Jam Puncak Sore        |                 |                                  |                                     |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA              |                       |                                  |                 |                                  |                                     |                               |                         |                          |                                       |                            |
| g = 56                            | g = 42                | g = 30                           | g = 13          | g = 62                           | Waktu siklus:<br>c = 163            |                               |                         |                          |                                       |                            |
|                                   |                       |                                  |                 |                                  | Waktu hilang<br>total :<br>LTI = 20 |                               |                         |                          |                                       |                            |
| IG = 5                            | IG = 5                | IG = 5                           | IG = 5          | IG = 5                           |                                     |                               |                         |                          |                                       |                            |
|                                   |                       |                                  |                 |                                  |                                     |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                  |                       |                                  |                 |                                  |                                     |                               |                         |                          |                                       |                            |
| Kode pendekat                     | Tipe lingkungan jalan | Hambatan samping Tinggi / Rendah | Median Ya/Tidak | Kelandaian +/- %                 | Belok kiri langsung Ya/Tidak        | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                   |                       |                                  |                 |                                  |                                     |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                 | COM                   | Tinggi                           | T               |                                  | T                                   | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T                                 | COM                   | Tinggi                           | T               |                                  | Y                                   | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S                                 | COM                   | Tinggi                           | T               |                                  | T                                   | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B                                 | COM                   | Tinggi                           | T               |                                  | T                                   | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST                               | COM                   | Tinggi                           | T               |                                  | T                                   | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |

## Formulir SIG- II Perencanaan 3 untuk Simpang Ngabean

| SIMPANG BERSINYAL |       |                                          |            | Tanggal :                   |          |                      |            | Ditangani oleh : Krisnandio S P |          |            |          |                                             |            |                         |          |                |          |                         |                                             |
|-------------------|-------|------------------------------------------|------------|-----------------------------|----------|----------------------|------------|---------------------------------|----------|------------|----------|---------------------------------------------|------------|-------------------------|----------|----------------|----------|-------------------------|---------------------------------------------|
| Formulir SIG-II   |       |                                          |            | Kota : Yogyakarta           |          |                      |            | Perihal : 4 Fase                |          |            |          |                                             |            |                         |          |                |          |                         |                                             |
| ARUS LALU LINTAS  |       |                                          |            | Simpang : Simpang 4 Ngabean |          |                      |            | Periode : Jam Puncak Sore       |          |            |          |                                             |            |                         |          |                |          |                         |                                             |
|                   |       | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |            |                             |          |                      |            |                                 |          |            |          |                                             |            | KEND. TAK BERMOTOR (UM) |          |                |          |                         |                                             |
| Kode Pendekat     | Arah  | Kendaraan Ringan (LV)                    |            | Kendaraan Berat (HV)        |          |                      |            | Sepeda Motor (MC)               |          |            |          | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |            |                         |          | Rasio Berbelok |          | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |
|                   |       | emp terlindung = 1,0                     |            | emp terlindung = 1,3        |          | emp terlindung = 0,2 |            | emp terlindung = 0,4            |          | smp / jam  |          | smp / jam                                   |            | smp / jam               |          | PLTOR          | PRT      |                         |                                             |
|                   |       | emp terlawan = 1,0                       |            | emp terlawan = 1,3          |          |                      |            |                                 |          | kend/jam   |          | kend/jam                                    |            | kend/jam                |          |                |          | kend / jam              |                                             |
|                   |       | smp / jam                                |            | smp / jam                   |          | smp / jam            |            | smp / jam                       |          | smp / jam  |          | smp / jam                                   |            | smp / jam               |          | smp / jam      |          |                         |                                             |
|                   |       | kend/jam                                 | terlindung | terlindung                  | terlawan | kend/jam             | terlindung | terlawan                        | kend/jam | terlindung | terlawan | kend/jam                                    | terlindung | terlawan                | kend/jam | terlindung     | terlawan | kend / jam              |                                             |
| U                 | LT    | 185                                      | 185        | 8                           | 10       | 10                   | 1540       | 308                             | 616      | 1733       | 503      | 811                                         | 0.32       |                         |          | 2              |          |                         |                                             |
|                   | ST    | 268                                      | 268        | 12                          | 16       | 16                   | 1830       | 366                             | 732      | 2110       | 650      | 1016                                        |            |                         |          | 11             |          |                         |                                             |
|                   | RT    | 249                                      | 249        | 2                           | 3        | 3                    | 952        | 190                             | 381      | 1203       | 442      | 632                                         |            | 0.28                    |          | 15             |          |                         |                                             |
|                   | Total | 702                                      | 702        | 22                          | 29       | 29                   | 4322       | 864                             | 1729     | 5046       | 1595     | 2459                                        | 0.32       | 0.28                    | 0.28     | 28             | 0.01     |                         |                                             |
| T                 | LT    | 26                                       | 26         | 9                           | 12       | 12                   | 197        | 39                              | 79       | 232        | 77       | 117                                         | 0.12       |                         |          | 11             |          |                         |                                             |
|                   | ST    | 187                                      | 187        | 12                          | 16       | 16                   | 1709       | 342                             | 684      | 1908       | 544      | 886                                         |            |                         |          | 5              |          |                         |                                             |
|                   | RT    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           |            | 0.00                    |          |                |          |                         |                                             |
|                   | Total | 213                                      | 213        | 21                          | 27       | 27                   | 1906       | 381                             | 762      | 2140       | 622      | 1003                                        | 0.12       | 0.00                    | 0.00     | 16             | 0.01     |                         |                                             |
| S                 | LT    | 72                                       | 72         | 10                          | 13       | 13                   | 662        | 132                             | 265      | 744        | 217      | 350                                         | 0.60       |                         |          | 10             |          |                         |                                             |
|                   | ST    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           |            |                         |          | 0              |          |                         |                                             |
|                   | RT    | 75                                       | 75         | 7                           | 9        | 9                    | 302        | 60                              | 121      | 384        | 145      | 205                                         |            | 0.40                    |          | 15             |          |                         |                                             |
|                   | Total | 147                                      | 147        | 17                          | 22       | 22                   | 964        | 193                             | 386      | 1128       | 362      | 555                                         | 0.60       | 0.40                    | 0.40     | 25             | 0.02     |                         |                                             |
| B                 | LT    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           | 0.00       |                         |          |                |          |                         |                                             |
|                   | ST    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           |            |                         |          |                |          |                         |                                             |
|                   | RT    | 34                                       | 34         | 34                          | 0        | 0                    | 348        | 70                              | 139      | 382        | 104      | 173                                         |            | 1.00                    |          | 1              |          |                         |                                             |
|                   | Total | 34                                       | 34         | 34                          | 0        | 0                    | 348        | 70                              | 139      | 382        | 104      | 173                                         | 0.00       | 1.00                    | 1.00     | 1              | 0.00     |                         |                                             |
| BST               | LT    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           | 0.00       |                         |          |                |          |                         |                                             |
|                   | ST    | 256                                      | 256        | 256                         | 9        | 12                   | 1311       | 262                             | 524      | 1576       | 530      | 792                                         |            |                         |          | 10             |          |                         |                                             |
|                   | RT    | 0                                        | 0          | 0                           | 0        | 0                    | 0          | 0                               | 0        | 0          | 0        | 0                                           |            | 0.00                    |          |                |          |                         |                                             |
|                   | Total | 256                                      | 256        | 256                         | 9        | 12                   | 1311       | 262                             | 524      | 1576       | 530      | 792                                         | 0.00       | 0.00                    | 0.00     | 10             | 0.01     |                         |                                             |

## Formulir SIG- III Perencanaan 3 untuk Simpang Ngabean

|                   |    |                                                                       |             |             |             |             |                   |
|-------------------|----|-----------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------------|
| SIMPANG BERSINYAL |    | Tanggal : 20 November 2020                                            |             |             |             |             |                   |
| Formulir SIG-III  |    | Ditangani Oleh : Krisnandio                                           |             |             |             |             |                   |
| WAKTU ANTAR HIJAU |    | Kota : Yogyakarta                                                     |             |             |             |             |                   |
| WAKTU HILANG      |    | Simpang : Ngabean                                                     |             |             |             |             |                   |
|                   |    | Perihal : 4 - Fase hijau awal                                         |             |             |             |             |                   |
| Berangkat         |    | Lalu Lintas Datang                                                    |             |             |             |             |                   |
| Kode              | VE | Kode                                                                  | Utara       | Timur       | Selatan     | Barat       | Waktu Merah Semua |
|                   |    | VA                                                                    | 10          | 10          | 10          | 10          |                   |
| Utara             | 10 | Jarak Berangkat - Datang (m)                                          |             |             |             | 16+5-14     |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |             |             | 1.6+0.5-1.4 | 0.7               |
| Timur             | 10 | Jarak Berangkat - Datang (m)                                          |             |             | 24+5-19     |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |             | 2.4+0.5-1.9 |             | 1                 |
| Selatan           | 10 | Jarak Berangkat - Datang (m)                                          | 47+5-34     |             |             |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        | 4.7+0.5-3.4 |             |             |             | 0.9               |
| Barat             | 10 | Jarak Berangkat - Datang (m)                                          |             | 38+5-36     |             |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             | 3.8+0.5-3.6 |             |             | 0.8               |
|                   |    | Penentuan Waktu Merah Semua                                           |             |             |             |             |                   |
|                   |    | Fase 1                                                                | →           | Fase 2      |             |             |                   |
|                   |    | Fase 2                                                                | →           | Fase 3      |             |             |                   |
|                   |    | Fase 3                                                                | →           | Fase 4      |             |             |                   |
|                   |    | Fase 4                                                                | →           | Fase 1      |             |             |                   |
|                   |    | Waktu Kuning Total                                                    |             |             |             |             |                   |
|                   |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |             |             |             |                   |
|                   |    | 20                                                                    |             |             |             |             |                   |

## Formulir SIG- IV Perencanaan 3 untuk Simpang Ngabean

| SIMPANG BERSINYAL                     |                      |                                    |                                    | Tanggal :                  |                                        | Ditangani oleh : Krisnando SP |                                      |                           |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
|---------------------------------------|----------------------|------------------------------------|------------------------------------|----------------------------|----------------------------------------|-------------------------------|--------------------------------------|---------------------------|------|----------------------------|------------|---------------------------------|------|--------------------------|-----------------|-------------------|-----------------------|------------------------|------|-----------------------|------|------------------------|--------|--|
| Formulir SIG-IV                       |                      |                                    |                                    | Kota : Yogyakarta          |                                        | Perihal : 4 Fase              |                                      |                           |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
| PENENTUAN WAKTU SINYAL                |                      |                                    |                                    | Simpang : Simpang 4 Ngbean |                                        | Periode : 1 jam Puncak Sore   |                                      |                           |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
| KAPASITAS                             |                      |                                    |                                    |                            |                                        |                               |                                      |                           |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
| Fase 1                                |                      |                                    |                                    | Fase 2                     |                                        | Fase 3                        |                                      | Fase 4                    |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
| Distribusi arus lalu lintas (smp/jam) |                      |                                    |                                    |                            |                                        |                               |                                      |                           |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
| U ↑                                   |                      |                                    |                                    |                            |                                        |                               |                                      |                           |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
| Kode Pendekat                         | Hijau dalam fase no. | Tipe pendekat                      |                                    | Rasio kendaraan berbelok   |                                        | Arus RT (smp/jam)             |                                      | Lebar efektif (m)         |      | Arus jenuh (smp/jam hijau) |            |                                 |      | Arus lalu lintas smp/jam |                 | Rasio fase (PR)   |                       | Waktu hijau (det)      |      | Kapasitas smp/jam (C) |      | Derajat kejenuhan (DS) |        |  |
|                                       |                      | P <sub>L</sub> atau P <sub>T</sub> | P <sub>R</sub> atau P <sub>T</sub> | Q <sub>RT</sub>            | Q <sub>RT</sub>                        | W <sub>c</sub>                | Nilai dasar smp/jam hijau            | Faktor-faktor penyesuaian |      |                            |            | Nilai disesuaikan smp/jam hijau | Q    | Q/S                      | Rasio fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |      |                       |      |                        |        |  |
|                                       |                      |                                    |                                    |                            |                                        |                               |                                      | Semua tipe pendekat       |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
|                                       |                      |                                    |                                    |                            |                                        |                               |                                      | Hanya tipe P              |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
|                                       |                      |                                    |                                    |                            |                                        |                               |                                      |                           |      |                            |            |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        |        |  |
| U                                     | 1                    | P                                  |                                    | 0.32                       | 0.28                                   |                               |                                      |                           | 10.5 | 0.83                       | 0.94       | 1.00                            | 1.00 | 1.00                     | 1.00            | 1.00              | 1.00                  | 1.00                   | 1.00 | 1.00                  | 1.00 | 1.00                   |        |  |
| T                                     | 2                    | P                                  |                                    | 0.12                       | 0.00                                   |                               |                                      |                           | 5.4  | 0.83                       | 0.94       | 1.00                            | 1.00 | 1.00                     | 1.00            | 1.00              | 1.00                  | 1.00                   | 1.00 | 1.00                  | 1.00 | 1.00                   |        |  |
| S                                     | 4                    | P                                  |                                    | 0.60                       | 0.40                                   |                               |                                      |                           | 4.8  | 0.83                       | 0.93       | 1.00                            | 1.00 | 1.00                     | 1.00            | 1.10              | 0.90                  | 1.00                   | 1.00 | 1.00                  | 1.00 | 1.00                   |        |  |
| B                                     | 3                    | P                                  |                                    | 0.00                       | 1.00                                   |                               |                                      |                           | 3    | 0.83                       | 0.94       | 0.93                            | 1.00 | 1.00                     | 1.00            | 1.26              | 1.00                  | 1.00                   | 1.00 | 1.00                  | 1.00 | 1.00                   |        |  |
| BST                                   | 2 & 3                | P                                  |                                    | 0.00                       | 0.00                                   |                               |                                      |                           | 3.6  | 0.83                       | 0.94       | 0.93                            | 1.00 | 1.00                     | 1.00            | 1.00              | 1.00                  | 1.00                   | 1.00 | 1.00                  | 1.00 | 1.00                   |        |  |
| Waktu hilang total LTI (det)          |                      |                                    |                                    | 20                         | Waktu siklus pra penyesuaian cua (det) |                               | Waktu siklus pra penyesuaian c (det) |                           | 63   |                            | IFR = 1.05 |                                 |      |                          |                 |                   |                       |                        |      |                       |      |                        | ΣFRent |  |



## Formulir SIG- I Perencanaan 4 untuk Simpang Wirobrajan

| Lampiran 1. Data Kondisi Lapangan |                          | Tanggal :                        | Ditangani oleh : Krisnandio S.P.                                        |                  |                              |                               |                    |                   |                                |                     |
|-----------------------------------|--------------------------|----------------------------------|-------------------------------------------------------------------------|------------------|------------------------------|-------------------------------|--------------------|-------------------|--------------------------------|---------------------|
| SIMPANG BERSINYAL                 |                          |                                  |                                                                         |                  |                              |                               |                    |                   |                                |                     |
| Formulir SIG-I                    |                          | Simpang : Simpang 4 Wirobrajan   |                                                                         |                  |                              |                               |                    |                   |                                |                     |
| GEOMETRI                          |                          | Ukuran kota : 431.939 Jiwa       |                                                                         |                  |                              |                               |                    |                   |                                |                     |
| PENGATURAN LALU LINTAS            |                          | Perihal : 4 Fase                 |                                                                         |                  |                              |                               |                    |                   |                                |                     |
| LINGKUNGAN                        |                          | Periode : Jam Puncak Sore        |                                                                         |                  |                              |                               |                    |                   |                                |                     |
| FASE SINYAL YANG ADA              |                          |                                  |                                                                         |                  |                              |                               |                    |                   |                                |                     |
| $g = 33$<br><br>$IG = 5$          | $g = 29$<br><br>$IG = 5$ | $g = 18$<br><br>$IG = 5$         | $g = 30$<br><br>$IG = 5$                                                |                  |                              |                               |                    |                   |                                |                     |
|                                   |                          |                                  | Waktu siklus:<br>$c = 130$<br><br>Waktu hilang<br>total :<br>$LT1 = 20$ |                  |                              |                               |                    |                   |                                |                     |
|                                   |                          |                                  |                                                                         |                  |                              |                               |                    |                   |                                |                     |
| KONDISI LAPANGAN                  |                          |                                  |                                                                         |                  |                              |                               |                    |                   |                                |                     |
| Kode pendekat                     | Tipe lingkungan jalan    | Hambatan samping Tinggi / Rendah | Median Ya/Tidak                                                         | Kelandaian +/- % | Belok kiri langsung Ya/Tidak | Jarak ke kendaraan parkir (m) | Lebar pendekat (m) |                   |                                |                     |
|                                   |                          |                                  |                                                                         |                  |                              |                               | Pendekat $W_A$     | Masuk $W_{MASUK}$ | Belok kiri langsung $W_{LTOR}$ | Keluar $W_{KELUAR}$ |
| U                                 | COM                      | Tinggi                           | T                                                                       |                  | Y                            | 0                             | 6.9                | 4                 | 2.9                            | 5.7                 |
| T                                 | COM                      | Tinggi                           | T                                                                       |                  | Y                            | 0                             | 6.6                | 3.6               | 3                              | 6                   |
| S                                 | COM                      | Tinggi                           | T                                                                       |                  | Y                            | 0                             | 6.3                | 3.6               | 2.7                            | 6.9                 |
| B                                 | COM                      | Tinggi                           | T                                                                       |                  | Y                            | 0                             | 7.2                | 4.8               | 2.4                            | 5.4                 |

## Formulir SIG- II Perencanaan 4 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL |       |                                            | Tanggal :                 |                                            |          | Ditangani oleh : Krisnandio S P            |          |                                             |            |           |            |                |      |                         |                                             |                         |
|-------------------|-------|--------------------------------------------|---------------------------|--------------------------------------------|----------|--------------------------------------------|----------|---------------------------------------------|------------|-----------|------------|----------------|------|-------------------------|---------------------------------------------|-------------------------|
| Formulir SIG-II   |       |                                            | Kota : Yogyakarta         |                                            |          | Perihal : 4 Fase                           |          |                                             |            |           |            |                |      |                         |                                             |                         |
| ARUS LALU LINTAS  |       |                                            | Periode : Jam Puncak Sore |                                            |          | Periode : Jam Puncak Sore                  |          |                                             |            |           |            |                |      |                         |                                             |                         |
| Kode Pendekat     | Arah  | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV)   |                           |                                            |          |                                            |          |                                             |            |           |            |                |      |                         |                                             | KEND. TAK BERMOTOR (UM) |
|                   |       | Kendaraan Ringan (LV)                      |                           | Kendaraan Berat (HV)                       |          | Sepeda Motor (MC)                          |          | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |            |           |            | Rasio Berbelok |      | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |                         |
|                   |       | emp terlindung = 1,0<br>emp terlawan = 1,0 |                           | emp terlindung = 1,3<br>emp terlawan = 1,3 |          | emp terlindung = 0,2<br>emp terlawan = 0,4 |          | kend/jam                                    |            | snp / jam |            | PLTOR          | PRT  |                         |                                             |                         |
|                   |       | kend/jam                                   | snp / jam                 |                                            | kend/jam | snp / jam                                  |          | kend/jam                                    | snp / jam  |           | terlindung |                |      | terlawan                |                                             |                         |
|                   |       |                                            | terlindung                | terlawan                                   |          | terlindung                                 | terlawan |                                             | terlindung | terlawan  |            |                |      |                         |                                             |                         |
|                   |       |                                            |                           | kend/jam                                   |          | snp / jam                                  |          | kend/jam                                    |            | snp / jam |            | kend/jam       |      | snp / jam               |                                             |                         |
| U                 | LT    | 49                                         | 49                        | 2                                          | 3        | 3                                          | 282      | 56                                          | 113        | 333       | 108        | 164            | 0.11 |                         | 4                                           |                         |
|                   | ST    | 219                                        | 219                       | 3                                          | 4        | 4                                          | 1328     | 266                                         | 531        | 1550      | 489        | 754            |      |                         | 12                                          |                         |
|                   | RT    | 224                                        | 224                       | 7                                          | 9        | 9                                          | 983      | 197                                         | 393        | 1214      | 430        | 626            |      | 0.42                    | 2                                           |                         |
|                   | Total | 492                                        | 492                       | 12                                         | 16       | 16                                         | 2593     | 519                                         | 1037       | 3097      | 1026       | 1545           |      |                         | 18                                          | 0.01                    |
| T                 | LT    | 95                                         | 95                        | 1                                          | 1        | 1                                          | 1026     | 205                                         | 410        | 1122      | 302        | 507            | 0.29 |                         | 14                                          |                         |
|                   | ST    | 200                                        | 200                       | 12                                         | 16       | 16                                         | 1268     | 254                                         | 507        | 1480      | 469        | 723            |      |                         | 19                                          |                         |
|                   | RT    | 156                                        | 156                       | 13                                         | 17       | 17                                         | 481      | 96                                          | 192        | 650       | 269        | 365            |      | 0.26                    | 9                                           |                         |
|                   | Total | 451                                        | 451                       | 26                                         | 34       | 34                                         | 2775     | 555                                         | 1110       | 3252      | 1040       | 1595           |      |                         | 42                                          | 0.01                    |
| S                 | LT    | 83                                         | 83                        | 7                                          | 9        | 9                                          | 799      | 160                                         | 320        | 889       | 252        | 412            | 0.38 |                         | 11                                          |                         |
|                   | ST    | 165                                        | 165                       | 9                                          | 12       | 12                                         | 784      | 157                                         | 314        | 958       | 334        | 490            |      |                         | 5                                           |                         |
|                   | RT    | 32                                         | 32                        | 0                                          | 0        | 0                                          | 200      | 40                                          | 80         | 232       | 72         | 112            |      | 0.11                    | 1                                           |                         |
|                   | Total | 280                                        | 280                       | 16                                         | 21       | 21                                         | 1783     | 357                                         | 713        | 2079      | 657        | 1014           |      |                         | 17                                          | 0.01                    |
| B                 | LT    | 375                                        | 375                       | 10                                         | 13       | 13                                         | 1643     | 329                                         | 657        | 2028      | 717        | 1045           | 0.47 |                         | 13                                          |                         |
|                   | ST    | 200                                        | 200                       | 7                                          | 9        | 9                                          | 989      | 198                                         | 396        | 1196      | 407        | 605            |      |                         | 10                                          |                         |
|                   | RT    | 204                                        | 204                       | 2                                          | 3        | 3                                          | 903      | 181                                         | 361        | 1109      | 387        | 568            |      | 0.26                    | 11                                          |                         |
|                   | Total | 779                                        | 779                       | 19                                         | 25       | 25                                         | 3535     | 707                                         | 1414       | 4333      | 1511       | 2218           |      |                         | 34                                          | 0.01                    |

## Formulir SIG- III Perencanaan 4 untuk Simpang Wirobrajan

|                                                                       |    |                                |             |             |             |             |                   |
|-----------------------------------------------------------------------|----|--------------------------------|-------------|-------------|-------------|-------------|-------------------|
| SIMPANG BERSINYAL                                                     |    | Tanggal : 20 November 2020     |             |             |             |             |                   |
| Formulir SIG-III                                                      |    | Ditangani Oleh : Krisnandio    |             |             |             |             |                   |
| WAKTU ANTAR HIJAU                                                     |    | Kota : Yogyakarta              |             |             |             |             |                   |
| WAKTU HILANG                                                          |    | Simpang : Wirobrajan           |             |             |             |             |                   |
|                                                                       |    | Perihal : 4 - Fase hijau awal  |             |             |             |             |                   |
| Berangkat                                                             |    | Lalu Lintas Datang             |             |             |             |             |                   |
| Kode                                                                  | VE | Kode                           | Utara       | Timur       | Selatan     | Barat       | Waktu Merah Semua |
|                                                                       |    | VA                             | 10          | 10          | 10          | 10          |                   |
| Utara                                                                 | 10 | Jarak Berangkat - Datang (m)   |             | 22+5-17     |             |             |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) |             | 2.2+0.5-1.7 |             |             | 1                 |
| Timur                                                                 | 10 | Jarak Berangkat - Datang (m)   |             |             | 24+5-21     |             |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) |             |             | 2.4+0.5-2.1 |             | 0.8               |
| Selatan                                                               | 10 | Jarak Berangkat - Datang (m)   |             |             |             | 29+5-22     |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) |             |             |             | 2.9+0.5-2.2 | 1.2               |
| Barat                                                                 | 10 | Jarak Berangkat - Datang (m)   | 29+5-15     |             |             |             |                   |
|                                                                       |    | Waktu Berangkat - Datang (det) | 2.9+0.5-1.5 |             |             |             | 1.9               |
| Penentuan Waktu Merah Semua                                           |    |                                |             |             |             |             |                   |
| Fase 1                                                                |    | Fase 2                         |             |             |             |             |                   |
| Fase 2                                                                |    | Fase 3                         |             |             |             |             |                   |
| Fase 3                                                                |    | Fase 4                         |             |             |             |             |                   |
| Fase 4                                                                |    | Fase 1                         |             |             |             |             |                   |
| Waktu Kuning Total                                                    |    |                                |             |             |             |             |                   |
| Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |    | 12                             |             |             |             |             |                   |
|                                                                       |    | 20                             |             |             |             |             |                   |

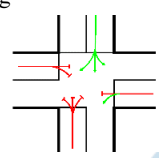
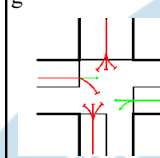
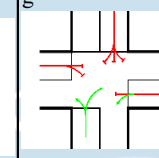
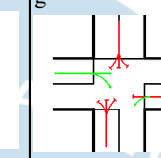
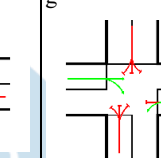
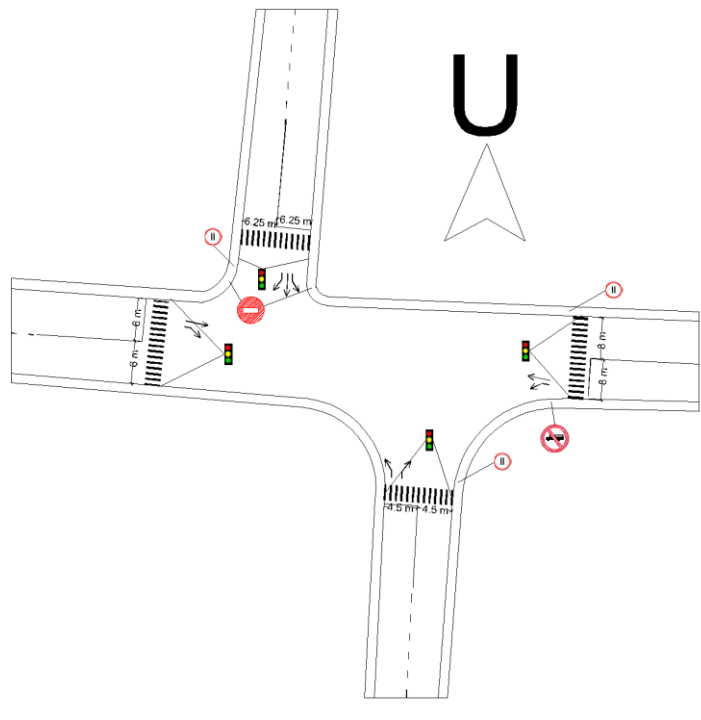
## Formulir SIG- VIII Perencanaan 4 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL<br>Formulir SIG-IV<br>PENENTUAN WAKTU SINYAL<br>KAPASITAS |                      |                          |      | Tanggal :<br>Kota : Yogyakarta<br>Ukuran kota : 431.939 Jiwa |                                        | Ditangani oleh : Krisnandio S.P.<br>Perihal : 4.Fase<br>Periode : Jam Puncak Sore |                            |                           |                                      |                           |                          |                 |                                 |                       |       |            |         |     |     |     |
|-----------------------------------------------------------------------------|----------------------|--------------------------|------|--------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------|----------------------------|---------------------------|--------------------------------------|---------------------------|--------------------------|-----------------|---------------------------------|-----------------------|-------|------------|---------|-----|-----|-----|
| Distribusi arus lalu lintas<br>(smp/jam)                                    |                      | Fase 1                   |      | Fase 2                                                       |                                        | Fase 3                                                                            |                            | Fase 4                    |                                      | Derajat kejenuhan<br>(Ds) |                          |                 |                                 |                       |       |            |         |     |     |     |
| Kode Pendekat                                                               | Hijau dalam fase no. | Rasio kendaraan berbelok |      | Arus RT (smp/jam)                                            |                                        | Lebar efektif (m)                                                                 | Arus jenuh (smp/jam hijau) |                           |                                      |                           | Arus lalu lintas smp/jam | Rasio fase (PR) | Waktu hijau (det)               | Kapasitas smp/jam (C) | Q / C |            |         |     |     |     |
|                                                                             |                      | PLTOR                    | PLT  | PRT                                                          | QRT                                    |                                                                                   | We                         | Faktor-faktor penyesuaian |                                      | Rasio Arus (FR)           |                          |                 |                                 |                       |       | Frerit IFR | S x g/c |     |     |     |
|                                                                             |                      |                          |      |                                                              |                                        | Ukuran kota                                                                       |                            | Hambatan samping          | Kelangan parkir                      |                           | Belok kanan              | Belok kiri      | Nilai disesuaikan smp/jam hijau | S                     | Q     |            |         | Q/S | g   |     |
|                                                                             |                      |                          |      |                                                              |                                        |                                                                                   |                            |                           | Fes                                  | Fsf                       | Fg                       | Fp              | Frt                             | Flt                   |       |            |         |     |     |     |
| U                                                                           | 1                    | P                        | 0.11 | 0.42                                                         |                                        | 6.9                                                                               | 4140                       | 0.83                      | 0.94                                 | 100                       | 100                      | 1.11            | 0.98                            | 3506                  | 918   | 0.262      | 0.297   | 33  | 890 | 103 |
| T                                                                           | 2                    | P                        | 0.29 | 0.26                                                         |                                        | 6.6                                                                               | 3960                       | 0.83                      | 0.94                                 | 100                       | 100                      | 1.07            | 0.95                            | 3131                  | 738   | 0.236      | 0.268   | 29  | 698 | 106 |
| S                                                                           | 3                    | P                        | 0.38 | 0.11                                                         |                                        | 6.3                                                                               | 3780                       | 0.83                      | 0.94                                 | 100                       | 100                      | 1.03            | 0.94                            | 2835                  | 406   | 0.143      | 0.162   | 18  | 393 | 103 |
| B                                                                           | 4                    | P                        | 0.47 | 0.26                                                         |                                        | 7.2                                                                               | 4320                       | 0.83                      | 0.94                                 | 100                       | 100                      | 1.07            | 0.92                            | 3308                  | 794   | 0.240      | 0.273   | 30  | 763 | 104 |
| Waktu hilang total (det)                                                    |                      | LTI                      | 20   |                                                              | Waktu siklus pra penyesuaian cua (det) |                                                                                   | 130                        |                           | Waktu siklus pra penyesuaian c (det) |                           | IFR = 0.881              |                 | 2FRerit                         |                       |       |            |         |     |     |     |

## Formulir SIG- V Perencanaan 4 untuk Simpang Wirobrajan

| SIMPANG BERSYAL           |                          |                      |                | Tanggal :                  |                                               | Ditangani oleh : Krisnandio S.P.            |                   |                     |                          |                           |                                       |                                    |                           |                       |                                       |       |
|---------------------------|--------------------------|----------------------|----------------|----------------------------|-----------------------------------------------|---------------------------------------------|-------------------|---------------------|--------------------------|---------------------------|---------------------------------------|------------------------------------|---------------------------|-----------------------|---------------------------------------|-------|
| Formulir SIG V            |                          |                      |                | Kota : Yogyakarta          |                                               | Perihal : 4 Fase                            |                   |                     |                          |                           |                                       |                                    |                           |                       |                                       |       |
| PANJANG ANTRIAN           |                          |                      |                | Ukuran kota : 431.939 Jiwa |                                               | Periode : Jam Puncak Sore                   |                   |                     |                          |                           |                                       |                                    |                           |                       |                                       |       |
| JUMLAH KENDARAAN TERHENTI |                          |                      |                | Waktu siklus : 130 detik   |                                               |                                             |                   |                     |                          |                           |                                       |                                    |                           |                       |                                       |       |
| TUNDAAN                   |                          |                      |                |                            |                                               |                                             |                   |                     |                          |                           |                                       |                                    |                           |                       |                                       |       |
| Kode Pendekat             | Arus lalu lintas smp/jam | Derajat kejenuhan DS | Rasio hijau GR | Jumlah kendaraan antri     |                                               |                                             |                   | Panjang antrian (m) | Rasio kendaraan stop/smp | Jumlah kendaraan terhenti | Tundaan                               |                                    |                           |                       |                                       |       |
|                           |                          |                      |                | NQ <sub>1</sub>            | NQ <sub>2</sub>                               | Total NQ <sub>1</sub> +NQ <sub>2</sub> = NQ | NQ <sub>MAX</sub> |                     |                          |                           | Tundaan lalu lintas rata-rata det/smp | Tundaan geometri rata-rata det/smp | Tundaan rata-rata det/smp | Tundaan total det.smp |                                       |       |
|                           | Q                        | C                    | Q/C            | g/c                        | 23.9                                          | 33.5                                        | 57.5              | 98.2                | QL                       | NS                        | Nsv                                   | DT                                 | DG                        | D=DT+DG               | D x Q                                 |       |
| U                         | 918                      | 890                  | 1.03           | 0.25                       | 27.1                                          | 27.1                                        | 54.2              | 80.0                | 491                      | 1.56                      | 1432                                  | 145.9                              | 4.5                       | 150.3                 | 138039                                |       |
| T                         | 738                      | 698                  | 1.06           | 0.22                       | 14.0                                          | 14.7                                        | 28.7              | 41.0                | 444                      | 1.83                      | 1351                                  | 191.0                              | 4.6                       | 195.6                 | 144376                                |       |
| S                         | 406                      | 393                  | 1.03           | 0.14                       | 24.0                                          | 29.0                                        | 53.0              | 75.0                | 228                      | 1.76                      | 715                                   | 184.4                              | 4.8                       | 189.2                 | 76713                                 |       |
| B                         | 794                      | 763                  | 1.04           | 0.23                       | 24.0                                          | 29.0                                        | 53.0              | 75.0                | 313                      | 1.66                      | 1320                                  | 163.6                              | 3.7                       | 167.3                 | 132873                                |       |
| LTOR (Semua)              | 1378                     |                      |                |                            |                                               |                                             |                   |                     |                          |                           |                                       | 0                                  | 6                         | 6                     | 8268                                  |       |
| Arus kor. Q kor           |                          |                      |                |                            | TOTAL                                         |                                             |                   |                     |                          |                           |                                       |                                    |                           |                       | 500268                                |       |
| Arus total Qtot           | 4234                     |                      |                |                            | Kendaraan terhenti rata-rata stop/smp : 1.138 |                                             |                   |                     |                          |                           |                                       |                                    |                           |                       | Tundaan simpang rata-rata : (det/smp) | 118.2 |
|                           |                          |                      |                |                            |                                               |                                             |                   |                     |                          |                           |                                       |                                    |                           |                       |                                       |       |

## Formulir SIG- I Perencanaan 4 untuk Simpang Ngabean

| Lampiran 1. Data Kondisi Lapangan                                                        |                                                                                          | Tanggal :                                                                                | Ditangani oleh : Krisnandio S.P.                                                         |                                                                                            |                              |                               |                         |                          |                                       |                            |
|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                                                                        |                                                                                          |                                                                                          |                                                                                          |                                                                                            |                              |                               |                         |                          |                                       |                            |
| Formulir SIG-I                                                                           |                                                                                          | Simpang : Simpang 4 Ngabean                                                              |                                                                                          |                                                                                            |                              |                               |                         |                          |                                       |                            |
| GEOMETRI                                                                                 |                                                                                          | Ukuran kota : 431.939 Jiwa                                                               |                                                                                          |                                                                                            |                              |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS                                                                   |                                                                                          | Perihal : 4 Fase                                                                         |                                                                                          |                                                                                            |                              |                               |                         |                          |                                       |                            |
| LINGKUNGAN                                                                               |                                                                                          | Periode : Jam Puncak Sore                                                                |                                                                                          |                                                                                            |                              |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA                                                                     |                                                                                          |                                                                                          |                                                                                          |                                                                                            |                              |                               |                         |                          |                                       |                            |
| g =<br> | g =<br> | g =<br> | g =<br> | g =<br> |                              |                               |                         |                          |                                       |                            |
| IG =                                                                                     | IG =                                                                                     | IG =                                                                                     | IG =                                                                                     | IG =                                                                                       |                              |                               |                         |                          |                                       |                            |
|                                                                                          |                                                                                          |                                                                                          |                                                                                          | Waktu siklus:<br>c =<br><br>Waktu hilang<br>total :<br>LTI =                               |                              |                               |                         |                          |                                       |                            |
|       |                                                                                          |                                                                                          |                                                                                          |                                                                                            |                              |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                                                                         |                                                                                          |                                                                                          |                                                                                          |                                                                                            |                              |                               |                         |                          |                                       |                            |
| Kode pendekat                                                                            | Tipe lingkungan jalan                                                                    | Hambatan samping Tinggi / Rendah                                                         | Median Ya/Tidak                                                                          | Kelandaian +/- %                                                                           | Belok kiri langsung Ya/Tidak | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                                                                          |                                                                                          |                                                                                          |                                                                                          |                                                                                            |                              |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                                                                        | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                                                                            | T                            | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T                                                                                        | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                                                                            | Y                            | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S                                                                                        | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                                                                            | T                            | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B                                                                                        | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                                                                            | T                            | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST                                                                                      | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                                                                            | T                            | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |



## Formulir SIG- III Perencanaan 4 untuk Simpang Ngabean

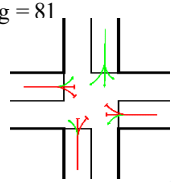
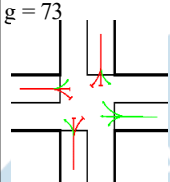
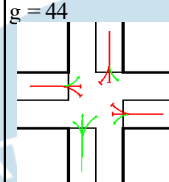
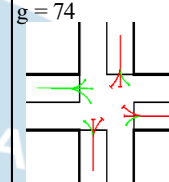
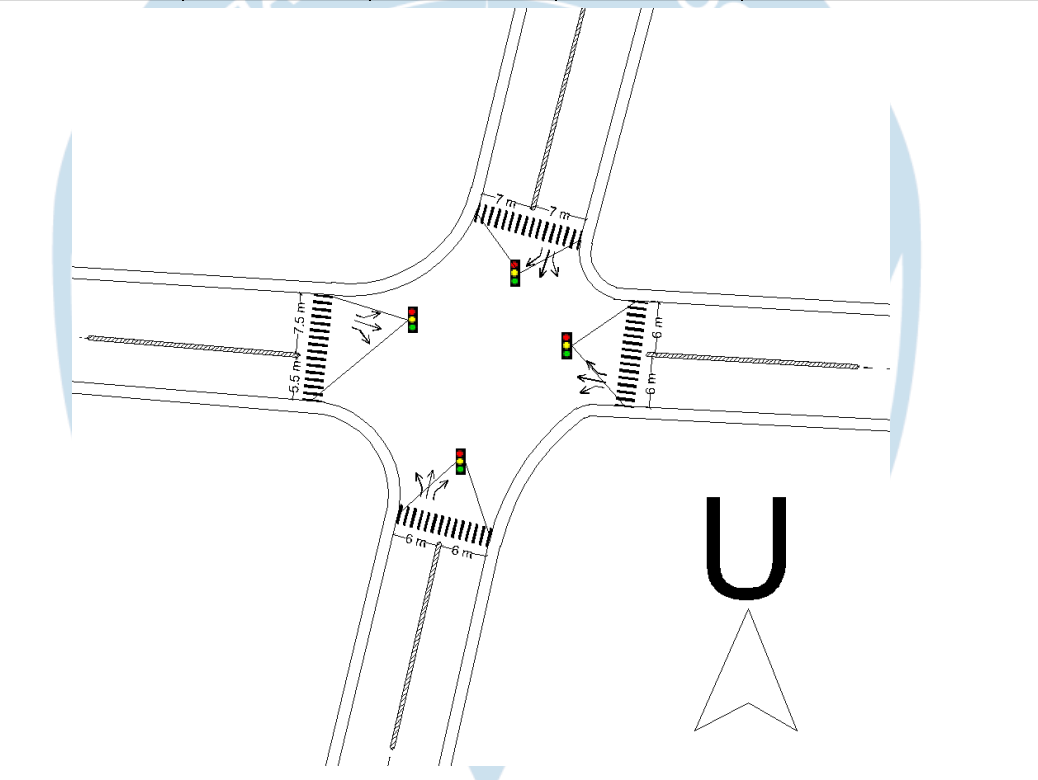
|                                                 |    |                                                                       |             |             |             |                   |       |
|-------------------------------------------------|----|-----------------------------------------------------------------------|-------------|-------------|-------------|-------------------|-------|
| SIMPANG BERSINYAL                               |    | Tanggal : 20 November 2020                                            |             |             |             |                   |       |
| Formulir SIG-III                                |    | Ditangani Oleh : Krisnandio                                           |             |             |             |                   |       |
| <b>WAKTU ANTAR HIJAU</b><br><b>WAKTU HILANG</b> |    | Kota : Yogyakarta                                                     |             |             |             |                   |       |
|                                                 |    | Simpang : Ngabean                                                     |             |             |             |                   |       |
|                                                 |    | Perihal : 4 - Fase hijau awal                                         |             |             |             |                   |       |
| Berangkat                                       |    | Lalu Lintas Datang                                                    |             |             |             | Waktu Merah Semua |       |
| Kode                                            | VE | Kode                                                                  | Utara       | Timur       | Selatan     |                   | Barat |
|                                                 |    | VA                                                                    | 10          | 10          | 10          | 10                |       |
| Utara                                           | 10 | Jarak Berangkat - Datang (m)                                          |             |             |             | 16+5-14           |       |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             |             |             | 1.6+0.5-1.4       | 0.7   |
| Timur                                           | 10 | Jarak Berangkat - Datang (m)                                          |             |             | 24+5-19     |                   |       |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             |             | 2.4+0.5-1.9 |                   | 1     |
| Selatan                                         | 10 | Jarak Berangkat - Datang (m)                                          | 47+5-34     |             |             |                   |       |
|                                                 |    | Waktu Berangkat - Datang (det)                                        | 4.7+0.5-3.4 |             |             |                   | 0.9   |
| Barat                                           | 10 | Jarak Berangkat - Datang (m)                                          |             | 38+5-36     |             |                   |       |
|                                                 |    | Waktu Berangkat - Datang (det)                                        |             | 3.8+0.5-3.6 |             |                   | 0.8   |
|                                                 |    | Penentuan Waktu Merah Semua                                           |             |             |             |                   |       |
|                                                 |    | Fase 1                                                                | →           | Fase 2      |             |                   |       |
|                                                 |    | Fase 2                                                                | →           | Fase 3      |             |                   |       |
|                                                 |    | Fase 3                                                                | →           | Fase 4      |             |                   |       |
|                                                 |    | Fase 4                                                                | →           | Fase 1      |             |                   |       |
|                                                 |    | Waktu Kuning Total                                                    |             |             |             |                   |       |
|                                                 |    | 12                                                                    |             |             |             |                   |       |
|                                                 |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |             |             |                   |       |
|                                                 |    | 20                                                                    |             |             |             |                   |       |

## Formulir SIG- IV Perencanaan 4 untuk Simpang Ngabean

| SIMPANG BERSINYAL<br>Formulir SIG-IV<br>PENENTUAN WAKTU SINYAL<br>KAPASITAS |                      |               | Tanggal :<br>Kota : Yogyakarta<br>Simpang : Simpang 4 Ngabean |      |                                      | Ditangani oleh : Krisnandio SP<br>Perihal : 4 Fase<br>Periode : Jam Puncak Sore |                   |                           |                                  |                            |                                 |                           |            |                 |                                 |                          |                        |                    |     |         |       |
|-----------------------------------------------------------------------------|----------------------|---------------|---------------------------------------------------------------|------|--------------------------------------|---------------------------------------------------------------------------------|-------------------|---------------------------|----------------------------------|----------------------------|---------------------------------|---------------------------|------------|-----------------|---------------------------------|--------------------------|------------------------|--------------------|-----|---------|-------|
| Distribusi arus lalu lintas<br>(smp/jam)<br>U ↑                             |                      |               | Fase 1                                                        |      | Fase 2                               |                                                                                 | Fase 3            |                           | Fase 4                           |                            |                                 |                           |            |                 |                                 |                          |                        |                    |     |         |       |
| Kode Pendekat                                                               | Hijau dalam fase no. | Tipe pendekat | Rasio kendaraan berbelok                                      |      | Arus RT (smp/jam)                    |                                                                                 | Lebar efektif (m) | Nilai dasar smp/jam hijau |                                  | Arus jenuh (smp/jam hijau) |                                 |                           |            | Rasio fase (PR) | Waktu hijau (det)               | Kapabilitas smp/jam (C)  | Derajat kejenuhan (DS) |                    |     |         |       |
|                                                                             |                      |               | PLTOR                                                         | PLT  | PRT                                  | QRT                                                                             |                   | QRTQ                      | Arus sendiri                     | Arus lawan                 | Nilai disesuaikan smp/jam hijau | Faktor-faktor penyesuaian |            |                 |                                 |                          |                        | Rasio arus (FR)    |     |         |       |
|                                                                             |                      |               |                                                               |      |                                      |                                                                                 |                   | Ukuran kota               | Hambatan samping                 | Kelengkapan                | Parkir                          | Belok kanan               | Belok kiri | Hanya tipe P    | Nilai disesuaikan smp/jam hijau | Arus lalu lintas smp/jam | Rasio arus (FR)        | Fr <sub>crit</sub> | IFR | S x g/c | Q / C |
| U                                                                           | 1                    | P             | 0.32                                                          | 0.28 |                                      |                                                                                 | 10.5              | 0.83                      | 0.94                             | 1.00                       | 1.00                            | 1.07                      | 0.95       | 0.95            | 4982                            | 1595                     | 0.320                  | 0.290              | 43  | 1648    | 0.97  |
| T                                                                           | 2                    | P             | 0.12                                                          | 0.00 |                                      |                                                                                 | 5.4               | 0.83                      | 0.94                             | 1.00                       | 1.00                            | 1.00                      | 0.98       | 0.98            | 2467                            | 544                      | 0.221                  | 0.200              | 30  | 569     | 0.96  |
| S                                                                           | 4                    | P             | 0.60                                                          | 0.40 |                                      |                                                                                 | 4.8               | 0.83                      | 0.93                             | 1.00                       | 1.00                            | 1.10                      | 0.90       | 0.90            | 2223                            | 362                      | 0.163                  | 0.147              | 23  | 393     | 0.92  |
| B                                                                           | 3                    | P             | 0.00                                                          | 1.00 |                                      |                                                                                 | 3                 | 0.83                      | 0.94                             | 0.93                       | 1.00                            | 1.26                      | 1.00       | 1.00            | 1646                            | 104                      | 0.063                  | 0.057              | 14  | 177     | 0.58  |
| BST                                                                         | 2 & 3                | P             | 0.00                                                          | 0.00 |                                      |                                                                                 | 3.6               | 0.83                      | 0.94                             | 0.93                       | 1.00                            | 1.00                      | 1.00       | 1.00            | 1567                            | 530                      | 0.338                  | 0.306              | 49  | 591     | 0.90  |
| Waktu hilang total LTI (det)                                                |                      |               | 20                                                            |      | Waktu siklus pra penyesuaian c (det) |                                                                                 | 130               |                           | Waktu siklus disesuaikan c (det) |                            | 180                             |                           | IFR = 1.05 |                 | 2FR <sub>crit</sub>             |                          |                        |                    |     |         |       |



## Formulir SIG- I Perencanaan 5 untuk Simpang Wirobrajan

| Lampiran 1. Data Kondisi Lapangan                                                                       |                                                                                                         | Tanggal :                                                                                               | Ditangani oleh : Krisnandio S.P.                                                                         |                                                                    |                              |                               |                    |                   |                                |                     |
|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------|-------------------------------|--------------------|-------------------|--------------------------------|---------------------|
| SIMPANG BERSINYAL                                                                                       |                                                                                                         |                                                                                                         |                                                                                                          |                                                                    |                              |                               |                    |                   |                                |                     |
| Formulir SIG-I                                                                                          |                                                                                                         | Simpang : Simpang 4 Wirobrajan                                                                          |                                                                                                          |                                                                    |                              |                               |                    |                   |                                |                     |
| GEOMETRI                                                                                                |                                                                                                         | Ukuran kota : 431.939 Jiwa                                                                              |                                                                                                          |                                                                    |                              |                               |                    |                   |                                |                     |
| PENGATURAN LALU LINTAS                                                                                  |                                                                                                         | Perihal : 4 Fase                                                                                        |                                                                                                          |                                                                    |                              |                               |                    |                   |                                |                     |
| LINGKUNGAN                                                                                              |                                                                                                         | Periode : Jam Puncak Sore                                                                               |                                                                                                          |                                                                    |                              |                               |                    |                   |                                |                     |
| FASE SINYAL YANG ADA                                                                                    |                                                                                                         |                                                                                                         |                                                                                                          |                                                                    |                              |                               |                    |                   |                                |                     |
| $g = 81$<br><br>IG = 5 | $g = 73$<br><br>IG = 5 | $g = 44$<br><br>IG = 5 | $g = 74$<br><br>IG = 5 | Waktu siklus:<br>$c = 293$<br><br>Waktu Hilang Total :<br>LTI = 20 |                              |                               |                    |                   |                                |                     |
|                      |                                                                                                         |                                                                                                         |                                                                                                          |                                                                    |                              |                               |                    |                   |                                |                     |
| KONDISI LAPANGAN                                                                                        |                                                                                                         |                                                                                                         |                                                                                                          |                                                                    |                              |                               |                    |                   |                                |                     |
| Kode pendekat                                                                                           | Tipe lingkungan jalan                                                                                   | Hambatan samping Tinggi / Rendah                                                                        | Median Ya/Tidak                                                                                          | Kelandaian +/- %                                                   | Belok kiri langsung Ya/Tidak | Jarak ke kendaraan parkir (m) | Lebar pendekat (m) |                   |                                |                     |
|                                                                                                         |                                                                                                         |                                                                                                         |                                                                                                          |                                                                    |                              |                               | Pendekat $W_A$     | Masuk $W_{MASUK}$ | Belok kiri langsung $W_{LTOR}$ | Keluar $W_{KELUAR}$ |
| U                                                                                                       | COM                                                                                                     | Tinggi                                                                                                  | T                                                                                                        | 0                                                                  | Y                            | 0                             | 6.9                | 4                 | 2.9                            | 5.7                 |
| T                                                                                                       | COM                                                                                                     | Tinggi                                                                                                  | T                                                                                                        | 0                                                                  | Y                            | 0                             | 6.6                | 3.6               | 3                              | 6                   |
| S                                                                                                       | COM                                                                                                     | Tinggi                                                                                                  | T                                                                                                        | 0                                                                  | Y                            | 0                             | 6.3                | 3.6               | 2.7                            | 6.9                 |
| B                                                                                                       | COM                                                                                                     | Tinggi                                                                                                  | T                                                                                                        | 0                                                                  | Y                            | 0                             | 7.2                | 4.8               | 2.4                            | 5.4                 |

## Formulir SIG- II Perencanaan 5 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL |       | Tanggal :                                  |          | Ditangani oleh : Krisnandio S P            |          |                                            |          |                                             |          |            |          |                |          |                         |                                             |
|-------------------|-------|--------------------------------------------|----------|--------------------------------------------|----------|--------------------------------------------|----------|---------------------------------------------|----------|------------|----------|----------------|----------|-------------------------|---------------------------------------------|
| Formulir SIG-II   |       | Kota : Yogyakarta                          |          | Perihal : 4 Fase                           |          |                                            |          |                                             |          |            |          |                |          |                         |                                             |
| ARUS LALU LINTAS  |       | Periode : Jam Puncak Sore                  |          | Periode : Jam Puncak Sore                  |          |                                            |          |                                             |          |            |          |                |          |                         |                                             |
| Kode Pendekat     | Arah  | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV)   |          |                                            |          |                                            |          |                                             |          |            |          |                |          | KEND. TAK BERMOTOR (UM) |                                             |
|                   |       | Kendaraan Ringan (LV)                      |          | Kendaraan Berat (HV)                       |          | Sepeda Motor (MC)                          |          | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |          |            |          | Rasio Berbelok |          |                         | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |
|                   |       | emp terlindung = 1,0<br>emp terlawan = 1,0 |          | emp terlindung = 1,3<br>emp terlawan = 1,3 |          | emp terlindung = 0,2<br>emp terlawan = 0,4 |          | kend/jam                                    |          | smp / jam  |          | PLTOR          |          |                         |                                             |
|                   |       | kend/jam                                   |          | kend/jam                                   |          | kend/jam                                   |          | kend/jam                                    |          | smp / jam  |          | PRT            |          |                         |                                             |
|                   |       | terlindung                                 | terlawan | terlindung                                 | terlawan | terlindung                                 | terlawan | terlindung                                  | terlawan | terlindung | terlawan | terlindung     | terlawan |                         |                                             |
| U                 | LT    | 49                                         | 49       | 2                                          | 3        | 3                                          | 282      | 56                                          | 113      | 333        | 108      | 164            | 0.11     |                         | 4                                           |
|                   | ST    | 219                                        | 219      | 3                                          | 4        | 4                                          | 1328     | 266                                         | 531      | 1550       | 489      | 754            |          |                         | 12                                          |
|                   | RT    | 224                                        | 224      | 7                                          | 9        | 9                                          | 983      | 197                                         | 393      | 1214       | 430      | 626            |          | 0.42                    | 2                                           |
|                   | Total | 492                                        | 492      | 12                                         | 16       | 16                                         | 2593     | 519                                         | 1037     | 3097       | 1026     | 1545           |          |                         | 18 0.01                                     |
| T                 | LT    | 95                                         | 95       | 1                                          | 1        | 1                                          | 1026     | 205                                         | 410      | 1122       | 302      | 507            | 0.29     |                         | 14                                          |
|                   | ST    | 200                                        | 200      | 12                                         | 16       | 16                                         | 1268     | 254                                         | 507      | 1480       | 469      | 723            |          |                         | 19                                          |
|                   | RT    | 156                                        | 156      | 13                                         | 17       | 17                                         | 481      | 96                                          | 192      | 650        | 269      | 365            |          | 0.26                    | 9                                           |
|                   | Total | 451                                        | 451      | 26                                         | 34       | 34                                         | 2775     | 555                                         | 1110     | 3252       | 1040     | 1595           |          |                         | 42 0.01                                     |
| S                 | LT    | 83                                         | 83       | 7                                          | 9        | 9                                          | 799      | 160                                         | 320      | 889        | 252      | 412            | 0.38     |                         | 11                                          |
|                   | ST    | 165                                        | 165      | 9                                          | 12       | 12                                         | 784      | 157                                         | 314      | 958        | 334      | 490            |          |                         | 5                                           |
|                   | RT    | 32                                         | 32       | 0                                          | 0        | 0                                          | 200      | 40                                          | 80       | 232        | 72       | 112            |          | 0.11                    | 1                                           |
|                   | Total | 280                                        | 280      | 16                                         | 21       | 21                                         | 1783     | 357                                         | 713      | 2079       | 657      | 1014           |          |                         | 17 0.01                                     |
| B                 | LT    | 375                                        | 375      | 10                                         | 13       | 13                                         | 1643     | 329                                         | 657      | 2028       | 717      | 1045           | 0.47     |                         | 13                                          |
|                   | ST    | 200                                        | 200      | 7                                          | 9        | 9                                          | 989      | 198                                         | 396      | 1196       | 407      | 605            |          |                         | 10                                          |
|                   | RT    | 204                                        | 204      | 2                                          | 3        | 3                                          | 903      | 181                                         | 361      | 1109       | 387      | 568            |          | 0.26                    | 11                                          |
|                   | Total | 779                                        | 779      | 19                                         | 25       | 25                                         | 3535     | 707                                         | 1414     | 4333       | 1511     | 2218           |          |                         | 34 0.01                                     |

## Formulir SIG- III Perencanaan 5 untuk Simpang Wirobrajan

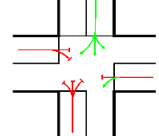
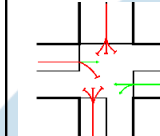
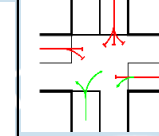
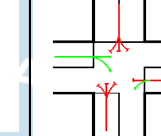
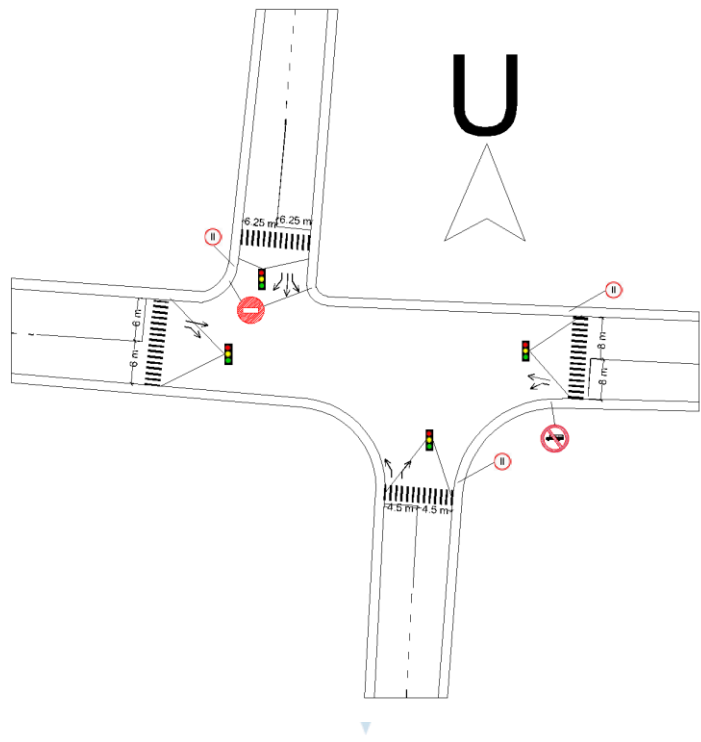
|                   |    |                                                                       |             |                       |             |                   |
|-------------------|----|-----------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|
| SIMPANG BERSINYAL |    | Tanggal                                                               |             | : 20 November 2020    |             |                   |
| Formulir SIG-III  |    | Ditangani Oleh                                                        |             | : Krisnandio          |             |                   |
| WAKTU ANTAR HIJAU |    | Kota                                                                  |             | : Yogyakarta          |             |                   |
| WAKTU HILANG      |    | Simpang                                                               |             | : Wirobrajan          |             |                   |
|                   |    | Perihal                                                               |             | : 4 - Fase hijau awal |             |                   |
| Berangkat         |    | Lalu Lintas Datang                                                    |             |                       |             | Waktu Merah Semua |
| Kode              | VE | Kode                                                                  | Utara       | Timur                 | Selatan     | Barat             |
|                   |    | VA                                                                    | 10          | 10                    | 10          | 10                |
| Utara             | 10 | Jarak Berangkat - Datang (m)                                          |             | 22+5-17               |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             | 2.2+0.5-1.7           |             |                   |
| Timur             | 10 | Jarak Berangkat - Datang (m)                                          |             |                       | 24+5-21     |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       | 2.4+0.5-2.1 |                   |
| Selatan           | 10 | Jarak Berangkat - Datang (m)                                          |             |                       |             | 29+5-22           |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       |             | 2.9+0.5-2.2       |
| Barat             | 10 | Jarak Berangkat - Datang (m)                                          | 29+5-15     |                       |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        | 2.9+0.5-1.5 |                       |             |                   |
|                   |    | Penentuan Waktu Merah Semua                                           |             |                       |             | 1.9               |
|                   |    | Fase 1 → Fase 2                                                       |             |                       |             | 2                 |
|                   |    | Fase 2 → Fase 3                                                       |             |                       |             | 2                 |
|                   |    | Fase 3 → Fase 4                                                       |             |                       |             | 2                 |
|                   |    | Fase 4 → Fase 1                                                       |             |                       |             | 2                 |
|                   |    | Waktu Kuning Total                                                    |             |                       |             | 12                |
|                   |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             | 20                |

## Formulir SIG- IV Perencanaan 5 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL                     |                      |               |                          |                                        |                   | Tanggal :                      |                   | Ditangani oleh : Krisnandio S P |                     |                |                 |                  |            |        |                 |                         |                   |                       |                        |                                 |      |
|---------------------------------------|----------------------|---------------|--------------------------|----------------------------------------|-------------------|--------------------------------|-------------------|---------------------------------|---------------------|----------------|-----------------|------------------|------------|--------|-----------------|-------------------------|-------------------|-----------------------|------------------------|---------------------------------|------|
| Formulir SIG-IV                       |                      |               |                          |                                        |                   | Kota : Yogyakarta              |                   | Perihal : 4 Fase                |                     |                |                 |                  |            |        |                 |                         |                   |                       |                        |                                 |      |
| PENUNTUN WAKTU SINYAL                 |                      |               |                          |                                        |                   | Simpang : Simpang 4 Wirobrajan |                   | Periode : Jam Puncak Pagi       |                     |                |                 |                  |            |        |                 |                         |                   |                       |                        |                                 |      |
| KAPASITAS                             |                      |               |                          |                                        |                   | Fase 1                         |                   | Fase 2                          |                     | Fase 3         |                 | Fase 4           |            |        |                 |                         |                   |                       |                        |                                 |      |
| Distribusi arus lalu lintas (smp/jam) |                      |               |                          |                                        |                   |                                |                   |                                 |                     |                |                 |                  |            |        |                 |                         |                   |                       |                        |                                 |      |
| Kode Pendekat                         | Hijau dalam fase no. | Tipe pendekat | Rasio kendaraan berbelok |                                        | Arus RT (smp/jam) |                                | Lebar efektif (m) | Arus jenuh (smp/jam hijau)      |                     |                |                 |                  |            |        | Rasio Arus (FR) | Rasio fase (PR)         | Waktu hijau (det) | Kapasitas smp/jam (C) | Derajat kejenuhan (DS) |                                 |      |
|                                       |                      |               | P <sub>L/TOR</sub>       | P <sub>L/T</sub>                       | P <sub>R/T</sub>  | Q <sub>RT</sub>                |                   | Q <sub>RTO</sub>                | Semua tipe pendekat |                |                 | Hanya tipe P     |            |        |                 |                         |                   |                       |                        | Nilai disesuaikan smp/jam hijau |      |
|                                       |                      |               |                          |                                        |                   |                                |                   |                                 | Arah diri           | Arah lawan     | Ukuran kota     | Hambatan samping | Kelandaian | Parkir | Belok kanan     | Belok kiri              |                   |                       |                        |                                 |      |
|                                       |                      |               |                          |                                        |                   |                                | F <sub>c</sub> s  | F <sub>sf</sub>                 | F <sub>G</sub>      | F <sub>p</sub> | F <sub>rT</sub> | F <sub>Lt</sub>  | S          | Q      | Q/S             | $\frac{Fr_{crit}}{IFR}$ | g                 | S x g/c               | Q / C                  |                                 |      |
| U                                     | 1                    | P             |                          | 0.11                                   | 0.42              |                                | 6.9               | 4140                            | 0.83                | 0.94           | 1.00            | 1.00             | 1.11       | 0.98   | 3506            | 918                     | 0.262             | 0.297                 | 81                     | 969                             | 0.95 |
| T                                     | 2                    | P             |                          | 0.29                                   | 0.26              |                                | 6.6               | 3960                            | 0.83                | 0.94           | 1.00            | 1.00             | 1.07       | 0.95   | 3131            | 738                     | 0.236             | 0.268                 | 73                     | 780                             | 0.95 |
| S                                     | 3                    | P             |                          | 0.38                                   | 0.11              |                                | 6.3               | 3780                            | 0.83                | 0.94           | 1.00            | 1.00             | 1.03       | 0.94   | 2835            | 406                     | 0.143             | 0.162                 | 44                     | 426                             | 0.95 |
| B                                     | 4                    | P             |                          | 0.47                                   | 0.26              |                                | 7.2               | 4320                            | 0.83                | 0.94           | 1.00            | 1.00             | 1.07       | 0.92   | 3308            | 794                     | 0.240             | 0.273                 | 75                     | 847                             | 0.94 |
| Waktu hilang total LTI (det)          |                      |               | 20                       | Waktu siklus pra penyesuaian cua (det) |                   |                                |                   |                                 |                     |                |                 |                  |            |        |                 | IFR =                   |                   |                       |                        |                                 |      |
|                                       |                      |               |                          | Waktu siklus disesuaikan c (det)       |                   |                                |                   | 293                             |                     |                |                 |                  |            |        |                 | $\Sigma FR_{crit}$      |                   |                       |                        |                                 |      |



## Formulir SIG- I Perencanaan 5 untuk Simpang Ngabean

| Lampiran 1. Data Kondisi Lapangan                                                        |                                                                                          | Tanggal :                                                                                | Ditangani oleh : Krisnandio S.P.                                                         |                                  |                              |                               |                         |                          |                                       |                            |
|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------|------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                                                                        |                                                                                          |                                                                                          |                                                                                          |                                  |                              |                               |                         |                          |                                       |                            |
| Formulir SIG-I                                                                           |                                                                                          | Simpang : Simpang 4 Ngabean                                                              |                                                                                          |                                  |                              |                               |                         |                          |                                       |                            |
| GEOMETRI                                                                                 |                                                                                          | Ukuran kota : 431.939 Jiwa                                                               |                                                                                          |                                  |                              |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS                                                                   |                                                                                          | Perihal : 4 Fase                                                                         |                                                                                          |                                  |                              |                               |                         |                          |                                       |                            |
| LINGKUNGAN                                                                               |                                                                                          | Periode : Jam Puncak Sore                                                                |                                                                                          |                                  |                              |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA                                                                     |                                                                                          |                                                                                          |                                                                                          |                                  |                              |                               |                         |                          |                                       |                            |
| g =<br> | g =<br> | g =<br> | g =<br> | Waktu siklus:<br>c = 293         |                              |                               |                         |                          |                                       |                            |
| IG =                                                                                     | IG =                                                                                     | IG =                                                                                     | IG =                                                                                     | Waktu hilang total :<br>LTI = 20 |                              |                               |                         |                          |                                       |                            |
|       |                                                                                          |                                                                                          |                                                                                          |                                  |                              |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                                                                         |                                                                                          |                                                                                          |                                                                                          |                                  |                              |                               |                         |                          |                                       |                            |
| Kode pendekat                                                                            | Tipe lingkungan jalan                                                                    | Hambatan samping Tinggi / Rendah                                                         | Median Ya/Tidak                                                                          | Kelandaian +/- %                 | Belok kiri langsung Ya/Tidak | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                                                                          |                                                                                          |                                                                                          |                                                                                          |                                  |                              |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                                                                        | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                  | T                            | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T                                                                                        | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                  | Y                            | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S                                                                                        | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                  | T                            | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B                                                                                        | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                  | T                            | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST                                                                                      | COM                                                                                      | Tinggi                                                                                   | T                                                                                        |                                  | T                            | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |

## Formulir SIG- II Perencanaan 5 untuk Simpang Ngabean

| SIMPANG BERSINYAL |       |                                          |                         | Tanggal :                   |          | Ditangani oleh : Krisnandio S P |                      |                                             |                         |                      |                         |                         |       |                         |                                             |      |
|-------------------|-------|------------------------------------------|-------------------------|-----------------------------|----------|---------------------------------|----------------------|---------------------------------------------|-------------------------|----------------------|-------------------------|-------------------------|-------|-------------------------|---------------------------------------------|------|
| Formulir SIG-II   |       |                                          |                         | Kota : Yogyakarta           |          | Perihal : 4 Fase                |                      |                                             |                         |                      |                         |                         |       |                         |                                             |      |
| ARUS LALU LINTAS  |       |                                          |                         | Simpang : Simpang 4 Ngabean |          | Periode : Jam Puncak Sore       |                      |                                             |                         |                      |                         |                         |       |                         |                                             |      |
|                   |       | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |                         |                             |          |                                 |                      |                                             |                         |                      |                         | KEND. TAK BERMOTOR (UM) |       |                         |                                             |      |
| Kode Pendekat     | Arah  | Kendaraan Ringan (LV)                    |                         | Kendaraan Berat (HV)        |          | Sepeda Motor (MC)               |                      | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |                         |                      |                         | Rasio Berbelok          |       | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |      |
|                   |       | emp terlindung = 1,0                     |                         | emp terlindung = 1,3        |          | emp terlindung = 0,2            |                      |                                             |                         |                      |                         |                         |       |                         |                                             |      |
|                   |       | emp terlawan = 1,0                       |                         | emp terlawan = 1,3          |          | emp terlawan = 0,4              |                      |                                             |                         |                      |                         |                         |       |                         |                                             |      |
|                   |       | kend/jam                                 | smp / jam<br>terlindung | kend/jam<br>terlawan        | kend/jam | smp / jam<br>terlindung         | kend/jam<br>terlawan | kend/jam                                    | smp / jam<br>terlindung | kend/jam<br>terlawan | smp / jam<br>terlindung | kend/jam<br>terlawan    | PLTOR | PRT                     |                                             |      |
|                   |       |                                          |                         |                             |          |                                 |                      |                                             |                         |                      |                         |                         |       |                         |                                             |      |
| U                 | LT    | 185                                      | 185                     | 8                           | 10       | 10                              | 1540                 | 308                                         | 616                     | 1733                 | 503                     | 811                     | 0.32  |                         | 2                                           |      |
|                   | ST    | 268                                      | 268                     | 12                          | 16       | 16                              | 1830                 | 366                                         | 732                     | 2110                 | 650                     | 1016                    |       |                         | 11                                          |      |
|                   | RT    | 249                                      | 249                     | 2                           | 3        | 3                               | 952                  | 190                                         | 381                     | 1203                 | 442                     | 632                     |       |                         | 15                                          |      |
|                   | Total | 702                                      | 702                     | 22                          | 29       | 29                              | 4322                 | 864                                         | 1729                    | 5046                 | 1595                    | 2459                    | 0.32  | 0.28                    | 28                                          | 0.01 |
| T                 | LT    | 26                                       | 26                      | 9                           | 12       | 12                              | 197                  | 39                                          | 79                      | 232                  | 77                      | 117                     | 0.12  |                         | 11                                          |      |
|                   | ST    | 187                                      | 187                     | 12                          | 16       | 16                              | 1709                 | 342                                         | 684                     | 1908                 | 544                     | 886                     |       |                         | 5                                           |      |
|                   | RT    | 0                                        | 0                       | 0                           | 0        | 0                               | 0                    | 0                                           | 0                       | 0                    | 0                       | 0                       |       |                         | 0.00                                        |      |
|                   | Total | 213                                      | 213                     | 21                          | 27       | 27                              | 1906                 | 381                                         | 762                     | 2140                 | 622                     | 1003                    | 0.12  | 0.00                    | 16                                          | 0.01 |
| S                 | LT    | 72                                       | 72                      | 10                          | 13       | 13                              | 662                  | 132                                         | 265                     | 744                  | 217                     | 350                     | 0.60  |                         | 10                                          |      |
|                   | ST    | 0                                        | 0                       | 0                           | 0        | 0                               | 0                    | 0                                           | 0                       | 0                    | 0                       | 0                       |       |                         | 0                                           |      |
|                   | RT    | 75                                       | 75                      | 7                           | 9        | 9                               | 302                  | 60                                          | 121                     | 384                  | 145                     | 205                     |       |                         | 15                                          |      |
|                   | Total | 147                                      | 147                     | 17                          | 22       | 22                              | 964                  | 193                                         | 386                     | 1128                 | 362                     | 555                     | 0.60  | 0.40                    | 25                                          | 0.02 |
| B                 | LT    | 0                                        | 0                       | 0                           | 0        | 0                               | 0                    | 0                                           | 0                       | 0                    | 0                       | 0                       | 0.00  |                         |                                             |      |
|                   | ST    | 0                                        | 0                       | 0                           | 0        | 0                               | 0                    | 0                                           | 0                       | 0                    | 0                       | 0                       |       |                         |                                             |      |
|                   | RT    | 34                                       | 34                      | 34                          | 0        | 0                               | 348                  | 70                                          | 139                     | 382                  | 104                     | 173                     |       | 1.00                    | 1                                           |      |
|                   | Total | 34                                       | 34                      | 34                          | 0        | 0                               | 348                  | 70                                          | 139                     | 382                  | 104                     | 173                     | 0.00  | 1.00                    | 1                                           | 0.00 |
| BST               | LT    | 0                                        | 0                       | 0                           | 0        | 0                               | 0                    | 0                                           | 0                       | 0                    | 0                       | 0                       | 0.00  |                         |                                             |      |
|                   | ST    | 256                                      | 256                     | 256                         | 9        | 12                              | 1311                 | 262                                         | 524                     | 1576                 | 530                     | 792                     |       |                         | 10                                          |      |
|                   | RT    | 0                                        | 0                       | 0                           | 0        | 0                               | 0                    | 0                                           | 0                       | 0                    | 0                       | 0                       |       | 0.00                    |                                             |      |
|                   | Total | 256                                      | 256                     | 256                         | 9        | 12                              | 1311                 | 262                                         | 524                     | 1576                 | 530                     | 792                     | 0.00  | 0.00                    | 10                                          | 0.01 |

## Formulir SIG- III Perencanaan 5 untuk Simpang Ngabean

|                   |    |                                                                       |             |                       |             |                   |
|-------------------|----|-----------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|
| SIMPANG BERSINYAL |    | Tanggal                                                               |             | : 20 November 2020    |             |                   |
| Formulir SIG-III  |    | Ditangani Oleh                                                        |             | : Krisnandio          |             |                   |
| WAKTU ANTAR HIJAU |    | Kota                                                                  |             | : Yogyakarta          |             |                   |
| WAKTU HILANG      |    | Simpang                                                               |             | : Ngabean             |             |                   |
|                   |    | Perihal                                                               |             | : 4 - Fase hijau awal |             |                   |
| Berangkat         |    | Lalu Lintas Datang                                                    |             |                       |             | Waktu Merah Semua |
| Kode              | VE | Kode                                                                  | Utara       | Timur                 | Selatan     | Barat             |
|                   |    | VA                                                                    | 10          | 10                    | 10          | 10                |
| Utara             | 10 | Jarak Berangkat - Datang (m)                                          |             |                       |             | 16+5-14           |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       |             | 1.6+0.5-1.4       |
| Timur             | 10 | Jarak Berangkat - Datang (m)                                          |             |                       | 24+5-19     |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             |                       | 2.4+0.5-1.9 | 1                 |
| Selatan           | 10 | Jarak Berangkat - Datang (m)                                          | 47+5-34     |                       |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        | 4.7+0.5-3.4 |                       |             | 0.9               |
| Barat             | 10 | Jarak Berangkat - Datang (m)                                          |             | 38+5-36               |             |                   |
|                   |    | Waktu Berangkat - Datang (det)                                        |             | 3.8+0.5-3.6           |             | 0.8               |
|                   |    | Penentuan Waktu Merah Semua                                           |             |                       |             |                   |
|                   |    | Fase 1                                                                | →           | Fase 2                |             | 2                 |
|                   |    | Fase 2                                                                | →           | Fase 3                |             | 2                 |
|                   |    | Fase 3                                                                | →           | Fase 4                |             | 2                 |
|                   |    | Fase 4                                                                | →           | Fase 1                |             | 2                 |
|                   |    | Waktu Kuning Total                                                    |             |                       |             | 12                |
|                   |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             | 20                |

## Formulir SIG- IV Perencanaan 5 untuk Simpang Ngabean

| SIMPANG BERSINYAL           |                      | Tanggal :                   |                          | Ditangani oleh : Krisnandio S.P.     |                   |                           |                                  |                  |                |                |                          |                 |                   |                                 |                        |       |                        |     |         |       |  |
|-----------------------------|----------------------|-----------------------------|--------------------------|--------------------------------------|-------------------|---------------------------|----------------------------------|------------------|----------------|----------------|--------------------------|-----------------|-------------------|---------------------------------|------------------------|-------|------------------------|-----|---------|-------|--|
| Formulir SIG-IV             |                      | Kota : Yogyakarta           |                          | Perihal : 4 Fase                     |                   |                           |                                  |                  |                |                |                          |                 |                   |                                 |                        |       |                        |     |         |       |  |
| PENENTUAN WAKTU SINYAL      |                      | Simpang : Simpang 4 Ngabean |                          | Periode : Jam Puncak Sore            |                   |                           |                                  |                  |                |                |                          |                 |                   |                                 |                        |       |                        |     |         |       |  |
| KAPASITAS                   |                      |                             |                          |                                      |                   |                           |                                  |                  |                |                |                          |                 |                   |                                 |                        |       |                        |     |         |       |  |
| Distribusi arus lalu lintas |                      | Fase 1                      |                          | Fase 2                               |                   |                           |                                  |                  |                |                |                          |                 |                   |                                 |                        |       |                        |     |         |       |  |
| U ↑                         |                      |                             |                          |                                      |                   |                           |                                  |                  |                |                |                          |                 |                   |                                 |                        |       |                        |     |         |       |  |
|                             |                      | Fase 3                      |                          | Fase 4                               |                   |                           |                                  |                  |                |                |                          |                 |                   |                                 |                        |       |                        |     |         |       |  |
| Kode Pendekat               | Hijau dalam fase no. | Tipe pendekat               | Rasio kendaraan berbelok | Arus RT (smp/jam)                    | Lebar efektif (m) | Nilai dasar smp/jam hijau | Arus jenuh (smp/jam hijau)       |                  |                |                | Arus lalu lintas smp/jam | Rasio fase (PR) | Waktu hijau (det) | Kapasitas smp/jam (C)           | Derajat kejenuhan (DS) |       |                        |     |         |       |  |
|                             |                      |                             |                          | Arah diri                            | Arah lawan        |                           | Ukuran kota                      | Hambatan samping | Kelandaian     | Parkir         | Belok kanan              | Hanya tipe P    | Belok kiri        | Nilai disesuaikan smp/jam hijau | Q                      | Q/S   | Fr <sub>crit</sub> IFR | g   | S x g/c | Q / C |  |
|                             |                      |                             | P <sub>L</sub> TOR       | P <sub>L</sub> T                     | P <sub>R</sub> T  | So                        | F <sub>es</sub>                  | F <sub>sf</sub>  | F <sub>G</sub> | F <sub>p</sub> | F <sub>RT</sub>          | F <sub>LT</sub> | S                 | 4982                            | 1595                   | 0.320 | 0.290                  | 180 | 1870    | 0.85  |  |
| U                           | 1                    | P                           | 0.32                     | 0.28                                 |                   | 6300                      | 0.83                             | 0.94             | 1.00           | 1.00           | 1.07                     | 0.95            | 0.95              | 4982                            | 1595                   | 0.320 | 0.290                  | 180 | 1870    | 0.85  |  |
| T                           | 2                    | P                           | 0.12                     | 0.00                                 |                   | 3240                      | 0.83                             | 0.94             | 1.00           | 1.00           | 1.00                     | 0.98            | 0.98              | 2467                            | 544                    | 0.221 | 0.200                  | 76  | 640     | 0.85  |  |
| S                           | 4                    | P                           | 0.60                     | 0.40                                 |                   | 2880                      | 0.83                             | 0.93             | 1.00           | 1.00           | 1.00                     | 0.90            | 0.90              | 2223                            | 362                    | 0.163 | 0.147                  | 57  | 432     | 0.84  |  |
| B                           | 3                    | P                           | 0.00                     | 1.00                                 |                   | 1800                      | 0.83                             | 0.94             | 0.93           | 1.00           | 1.26                     | 1.00            | 1.00              | 1646                            | 104                    | 0.063 | 0.057                  | 30  | 168     | 0.61  |  |
| BST                         | 2.83                 | P                           | 0.00                     | 1.00                                 |                   | 2160                      | 0.83                             | 0.94             | 0.93           | 1.00           | 1.00                     | 1.00            | 1.00              | 1567                            | 530                    | 0.338 | 0.306                  | 111 | 594     | 0.89  |  |
| Waktu hilang total (det)    |                      | LT1                         | 20                       | Waktu siklus pra penyesuaian c (det) |                   |                           | Waktu siklus disesuaikan c (det) |                  |                | 293            |                          |                 | IFR = 1.05        |                                 |                        |       |                        |     |         |       |  |

## Formulir SIG- V Perencanaan 5 untuk Simpang Ngabean

| SIMPANG BERSINYAL         |                          |                   |                      |                |                        |                 |                                             |                   |                     | Tanggal :                               |                           | Ditangani oleh : Krisnandio S P       |                                    |                                       |                       |
|---------------------------|--------------------------|-------------------|----------------------|----------------|------------------------|-----------------|---------------------------------------------|-------------------|---------------------|-----------------------------------------|---------------------------|---------------------------------------|------------------------------------|---------------------------------------|-----------------------|
| Formulir SIGV             |                          |                   |                      |                |                        |                 |                                             |                   |                     | Kota : Yogyakarta                       |                           | Perihal : 4 Fase                      |                                    |                                       |                       |
| PANJANG ANTRIAN           |                          |                   |                      |                |                        |                 |                                             |                   |                     | Simpang : Simpang 4 Ngabean             |                           |                                       |                                    |                                       |                       |
| JUMLAH KENDARAAN TERHENTI |                          |                   |                      |                |                        |                 |                                             |                   |                     | Waktu siklus :                          |                           | Periode : Jam Puncak Sore             |                                    |                                       |                       |
| TUNDAAN                   |                          |                   |                      |                |                        |                 |                                             |                   |                     | 293                                     |                           | detik                                 |                                    |                                       |                       |
| Kode Pendekat             | Arus lalu lintas smp/jam | Kapasitas smp/jam | Derajat kejenuhan DS | Rasio hijau GR | Jumlah kendaraan antri |                 |                                             |                   | Panjang antrian (m) | Rasio kendaraan stop/smp                | Jumlah kendaraan terhenti | Tundaan                               |                                    |                                       |                       |
|                           |                          |                   |                      |                | NQ <sub>1</sub>        | NQ <sub>2</sub> | Total NQ <sub>1</sub> +NQ <sub>2</sub> = NQ | NQ <sub>MAX</sub> |                     |                                         |                           | Tundaan lalu lintas rata-rata det/smp | Tundaan geometri rata-rata det/smp | Tundaan rata-rata det/smp             | Tundaan total det.smp |
| Q                         | Q                        | C                 | Q/C                  | g/c            |                        |                 |                                             |                   | QL                  | NS                                      | Nsv                       | DT                                    | DG                                 | D=DT+DG                               | D x Q                 |
| U                         | 1595                     | 1870              | 0.85                 | 0.38           | 2.4                    | 119.3           | 121.6                                       | 205.0             | 390                 | 0.84                                    | 1345                      | 88.6                                  | 3.9                                | 92.5                                  | 147577                |
| T                         | 544                      | 640               | 0.85                 | 0.26           | 2.2                    | 42.1            | 44.4                                        | 61.0              | 407                 | 0.90                                    | 490                       | 115.7                                 | 3.7                                | 119.4                                 | 65006                 |
| S                         | 362                      | 432               | 0.84                 | 0.19           | 2.0                    | 28.3            | 30.3                                        | 42.0              | 175                 | 0.93                                    | 335                       | 129.8                                 | 4.1                                | 134.0                                 | 48485                 |
| B                         | 104                      | 168               | 0.61                 | 0.10           | 0.3                    | 8.1             | 8.4                                         | 13.0              | 87                  | 0.89                                    | 93                        | 132.3                                 | 4.2                                | 136.5                                 | 14141                 |
| BST                       | 530                      | 594               | 0.89                 | 0.38           | 3.3                    | 40.5            | 43.8                                        | 60.0              | 333                 | 0.91                                    | 484                       | 105.5                                 | 4.2                                | 109.6                                 | 58091                 |
| LTOR (Semua)              | 798                      |                   |                      |                |                        |                 |                                             |                   |                     |                                         |                           | 0                                     | 6                                  | 6                                     | 4787                  |
| Arus kor. Q kor           |                          |                   |                      |                |                        |                 |                                             |                   |                     | TOTAL                                   | 2747                      |                                       |                                    | TOTAL                                 | 338087                |
| Arus total Qtot           | 3933                     |                   |                      |                |                        |                 |                                             |                   |                     | Kendaraan terhenti rata-rata stop/smp : | 0.698                     |                                       |                                    | Tundaan simpang rata-rata : (det/smp) | 86.0                  |



## Formulir SIG- II Perencanaan 6 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL |       |                                          | Tanggal :                 |                      |          | Ditangani oleh : Krisnandio S P |                    |                                             |                      |                    |       |                |      |                         |                                             |      |
|-------------------|-------|------------------------------------------|---------------------------|----------------------|----------|---------------------------------|--------------------|---------------------------------------------|----------------------|--------------------|-------|----------------|------|-------------------------|---------------------------------------------|------|
| Formulir SIG-II   |       |                                          | Kota : Yogyakarta         |                      |          | Perihal : 4 Fase                |                    |                                             |                      |                    |       |                |      |                         |                                             |      |
| ARUS LALU LINTAS  |       |                                          | Periode : Jam Puncak Sore |                      |          | Periode : Jam Puncak Sore       |                    |                                             |                      |                    |       |                |      |                         |                                             |      |
| Kode Pendekat     | Arah  | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |                           |                      |          |                                 |                    |                                             |                      |                    |       |                |      | KEND. TAK BERMOTOR (UM) |                                             |      |
|                   |       | Kendaraan Ringan (LV)                    |                           | Kendaraan Berat (HV) |          | Sepeda Motor (MC)               |                    | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |                      |                    |       | Rasio Berbelok |      |                         | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |      |
|                   |       | emp terlindung = 1,0                     |                           | emp terlindung = 1,3 |          | emp terlindung = 0,2            |                    | kend/jam                                    | smp / jam terlindung | smp / jam terlawan | PLTOR | PRT            |      |                         |                                             |      |
|                   |       | emp terlawan = 1,0                       |                           | emp terlawan = 1,3   |          | emp terlawan = 0,4              |                    |                                             |                      |                    |       |                |      |                         |                                             |      |
|                   |       | kend/jam                                 | smp / jam terlindung      | smp / jam terlawan   | kend/jam | smp / jam terlindung            | smp / jam terlawan | kend/jam                                    | smp / jam terlindung | smp / jam terlawan |       |                |      |                         |                                             |      |
|                   |       |                                          |                           |                      |          |                                 |                    |                                             |                      |                    |       |                |      |                         |                                             |      |
| U                 | LT    | 49                                       | 49                        | 49                   | 2        | 3                               | 3                  | 282                                         | 56                   | 113                | 333   | 108            | 164  | 0.11                    | 4                                           |      |
|                   | ST    | 219                                      | 219                       | 219                  | 3        | 4                               | 4                  | 1328                                        | 266                  | 531                | 1550  | 489            | 754  |                         | 12                                          |      |
|                   | RT    | 224                                      | 224                       | 224                  | 7        | 9                               | 9                  | 983                                         | 197                  | 393                | 1214  | 430            | 626  | 0.42                    | 2                                           |      |
|                   | Total | 492                                      | 492                       | 492                  | 12       | 16                              | 16                 | 2593                                        | 519                  | 1037               | 3097  | 1026           | 1545 |                         | 18                                          | 0.01 |
| T                 | LT    | 95                                       | 95                        | 95                   | 1        | 1                               | 1                  | 1026                                        | 205                  | 410                | 1122  | 302            | 507  | 0.29                    | 14                                          |      |
|                   | ST    | 200                                      | 200                       | 200                  | 12       | 16                              | 16                 | 1268                                        | 254                  | 507                | 1480  | 469            | 723  |                         | 19                                          |      |
|                   | RT    | 156                                      | 156                       | 156                  | 13       | 17                              | 17                 | 481                                         | 96                   | 192                | 650   | 269            | 365  | 0.26                    | 9                                           |      |
|                   | Total | 451                                      | 451                       | 451                  | 26       | 34                              | 34                 | 2775                                        | 555                  | 1110               | 3252  | 1040           | 1595 |                         | 42                                          | 0.01 |
| S                 | LT    | 83                                       | 83                        | 83                   | 7        | 9                               | 9                  | 799                                         | 160                  | 320                | 889   | 252            | 412  | 0.38                    | 11                                          |      |
|                   | ST    | 165                                      | 165                       | 165                  | 9        | 12                              | 12                 | 784                                         | 157                  | 314                | 958   | 334            | 490  |                         | 5                                           |      |
|                   | RT    | 32                                       | 32                        | 32                   | 0        | 0                               | 0                  | 200                                         | 40                   | 80                 | 232   | 72             | 112  | 0.11                    | 1                                           |      |
|                   | Total | 280                                      | 280                       | 280                  | 16       | 21                              | 21                 | 1783                                        | 357                  | 713                | 2079  | 657            | 1014 |                         | 17                                          | 0.01 |
| B                 | LT    | 375                                      | 375                       | 375                  | 10       | 13                              | 13                 | 1643                                        | 329                  | 657                | 2028  | 717            | 1045 | 0.47                    | 13                                          |      |
|                   | ST    | 200                                      | 200                       | 200                  | 7        | 9                               | 9                  | 989                                         | 198                  | 396                | 1196  | 407            | 605  |                         | 10                                          |      |
|                   | RT    | 204                                      | 204                       | 204                  | 2        | 3                               | 3                  | 903                                         | 181                  | 361                | 1109  | 387            | 568  | 0.26                    | 11                                          |      |
|                   | Total | 779                                      | 779                       | 779                  | 19       | 25                              | 25                 | 3535                                        | 707                  | 1414               | 4333  | 1511           | 2218 |                         | 34                                          | 0.01 |

## Formulir SIG- III Perencanaan 6 untuk Simpang Wirobrajan

|                   |  |                |  |                       |  |
|-------------------|--|----------------|--|-----------------------|--|
| SIMPANG BERSINYAL |  | Tanggal        |  | : 20 November 2020    |  |
| Formulir SIG-III  |  | Ditangani Oleh |  | : Krisnandio          |  |
| WAKTU ANTAR HIJAU |  | Kota           |  | : Yogyakarta          |  |
| WAKTU HILANG      |  | Simpang        |  | : Wirobrajan          |  |
|                   |  | Perihal        |  | : 4 - Fase hijau awal |  |

| Berangkat |    | Lalu Lintas Datang                                                    |             |             |             |             | Waktu Merah Semua |
|-----------|----|-----------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------------|
| Kode      | VE | Kode                                                                  | Utara       | Timur       | Selatan     | Barat       |                   |
| Utara     | 10 | VA                                                                    | 10          | 10          | 10          | 10          |                   |
|           |    | Jarak Berangkat - Datang (m)                                          |             | 22+5-17     |             |             |                   |
|           |    | Waktu Berangkat - Datang (det)                                        |             | 2.2+0.5-1.7 |             |             | 1                 |
| Timur     | 10 | Jarak Berangkat - Datang (m)                                          |             |             | 24+5-21     |             |                   |
|           |    | Waktu Berangkat - Datang (det)                                        |             |             | 2.4+0.5-2.1 |             | 0.8               |
| Selatan   | 10 | Jarak Berangkat - Datang (m)                                          |             |             |             | 29+5-22     |                   |
|           |    | Waktu Berangkat - Datang (det)                                        |             |             |             | 2.9+0.5-2.2 | 1.2               |
| Barat     | 10 | Jarak Berangkat - Datang (m)                                          | 29+5-15     |             |             |             |                   |
|           |    | Waktu Berangkat - Datang (det)                                        | 2.9+0.5-1.5 |             |             |             | 1.9               |
|           |    | Penentuan Waktu Merah Semua                                           |             |             |             |             |                   |
|           |    | Fase 1                                                                | →           | Fase 2      |             |             | 2                 |
|           |    | Fase 2                                                                | →           | Fase 3      |             |             | 2                 |
|           |    | Fase 3                                                                | →           | Fase 4      |             |             | 2                 |
|           |    | Fase 4                                                                | →           | Fase 1      |             |             | 2                 |
|           |    | Waktu Kuning Total                                                    |             |             |             |             | 12                |
|           |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |             |             |             | 20                |

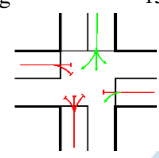
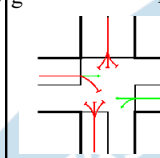
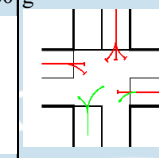
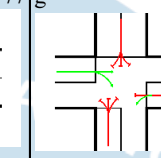
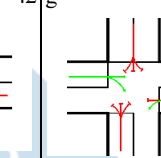
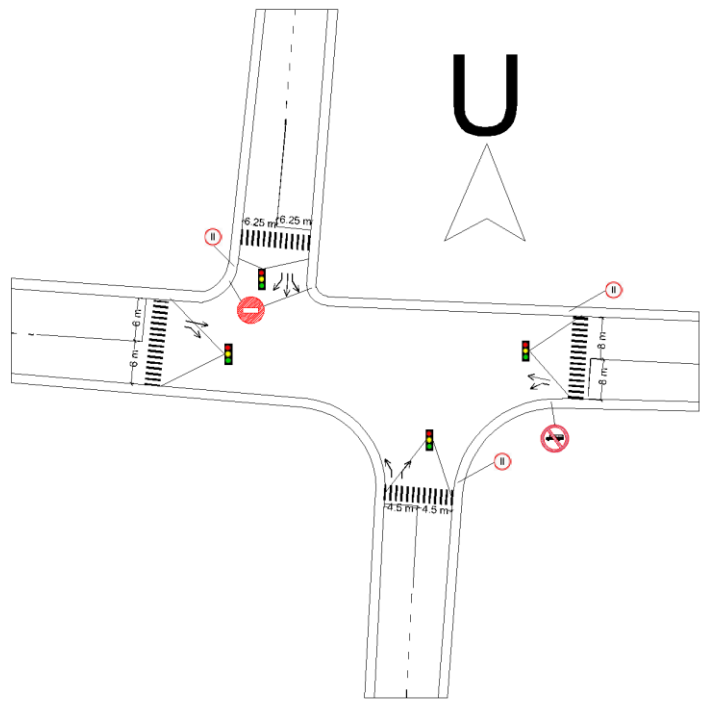
## Formulir SIG- IV Perencanaan 6 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL                     |                      |               |                          | Tanggal :                              |                   | Ditangani oleh : Krisnandio SP       |                   |                            |      |                           |                     |                  |              |                 |                   |                        |                        |                                 |                          |                 |        |             |            |
|---------------------------------------|----------------------|---------------|--------------------------|----------------------------------------|-------------------|--------------------------------------|-------------------|----------------------------|------|---------------------------|---------------------|------------------|--------------|-----------------|-------------------|------------------------|------------------------|---------------------------------|--------------------------|-----------------|--------|-------------|------------|
| Formulir SIG-IV                       |                      |               |                          | Kota : Yogyakarta                      |                   | Perihal : 4 Fase                     |                   |                            |      |                           |                     |                  |              |                 |                   |                        |                        |                                 |                          |                 |        |             |            |
| PENENTUAN WAKTU SINYAL                |                      |               |                          | Simpang : Simpang 4 Wirobrajan         |                   | Periode : Jam Puncak Sore            |                   |                            |      |                           |                     |                  |              |                 |                   |                        |                        |                                 |                          |                 |        |             |            |
| KAPASITAS                             |                      |               |                          | Fase 1                                 |                   | Fase 2                               |                   | Fase 3                     |      | Fase 4                    |                     |                  |              |                 |                   |                        |                        |                                 |                          |                 |        |             |            |
| Distribusi arus lalu lintas (smp/jam) |                      |               |                          | Fase 1                                 |                   | Fase 2                               |                   | Fase 3                     |      | Fase 4                    |                     |                  |              |                 |                   |                        |                        |                                 |                          |                 |        |             |            |
| Kode Pendekat                         | Hijau dalam fase no. | Tipe pendekat | Rasio kendaraan berbelok |                                        | Arus RT (smp/jam) |                                      | Lebar efektif (m) | Arus jenuh (smp/jam hijau) |      |                           |                     |                  |              | Rasio fase (PR) | Waktu hijau (det) | Kap asitas smp/jam (C) | Derajat kejenuhan (DS) |                                 |                          |                 |        |             |            |
|                                       |                      |               | P/LTOR                   | P/LT                                   | PRT               | QRT                                  |                   | QRT0                       | We   | Nilai dasar smp/jam hijau | Semua tipe pendekat |                  | Hanya tipe P |                 |                   |                        |                        | Nilai disesuaikan smp/jam hijau | Arus lalu lintas smp/jam | Rasio Arus (FR) |        |             |            |
|                                       |                      |               |                          |                                        |                   |                                      |                   |                            |      |                           | Ukuran kota         | Hambatan samping | Kelandaian   |                 |                   |                        |                        |                                 |                          |                 | Parkir | Belok kanan | Belok kiri |
|                                       |                      |               |                          |                                        |                   |                                      |                   |                            |      |                           |                     |                  |              |                 |                   |                        |                        |                                 |                          |                 |        |             |            |
| U                                     | 1                    | P             |                          | 0.11                                   | 0.42              |                                      |                   | 6.9                        | 4140 | 0.83                      | 0.94                | 100              | 100          | 1.11            | 0.98              | 3506                   | 918                    | 0.262                           | 0.297                    | 110             | 992    | 0.93        |            |
| T                                     | 2                    | P             |                          | 0.29                                   | 0.26              |                                      |                   | 6.6                        | 3960 | 0.83                      | 0.94                | 100              | 100          | 1.07            | 0.95              | 3131                   | 738                    | 0.236                           | 0.268                    | 99              | 797    | 0.93        |            |
| S                                     | 3                    | P             |                          | 0.38                                   | 0.11              |                                      |                   | 6.3                        | 3780 | 0.83                      | 0.94                | 100              | 100          | 1.03            | 0.94              | 2835                   | 406                    | 0.143                           | 0.162                    | 60              | 437    | 0.93        |            |
| B                                     | 4                    | P             |                          | 0.47                                   | 0.26              |                                      |                   | 7.2                        | 4320 | 0.83                      | 0.94                | 100              | 100          | 1.07            | 0.92              | 3308                   | 794                    | 0.240                           | 0.273                    | 100             | 850    | 0.93        |            |
| Waktu hilang total LTI (det)          |                      |               | 20                       | Waktu siklus pra penyesuaian cua (det) |                   | Waktu siklus pra penyesuaian c (det) |                   | 389                        |      | IFR = 0.881               |                     | ΣFRort           |              |                 |                   |                        |                        |                                 |                          |                 |        |             |            |

Formulir SIG- V Perencanaan 6 untuk Simpang Wirobrajan

| SIMPANG BERSINYAL         |                          |                   |                      |                |                        |                 |                                             |                          |                           | Tanggal :                               |                                       | Ditangani oleh : Krisnandio S P       |                           |                       |        |
|---------------------------|--------------------------|-------------------|----------------------|----------------|------------------------|-----------------|---------------------------------------------|--------------------------|---------------------------|-----------------------------------------|---------------------------------------|---------------------------------------|---------------------------|-----------------------|--------|
| Formulir SIG V            |                          |                   |                      |                |                        |                 |                                             |                          |                           | Kota : Yogyakarta                       |                                       | Perihal : 4 Fase                      |                           |                       |        |
| PANJANG ANTRIAN           |                          |                   |                      |                |                        |                 |                                             |                          |                           | Simpang : Simpang 4 Wirobrajan          |                                       | Periode : Jam Puncak Sore             |                           |                       |        |
| JUMLAH KENDARAAN TERHENTI |                          |                   |                      |                |                        |                 |                                             |                          |                           | Waktu siklus :                          |                                       | 389 detik                             |                           |                       |        |
| TUNDAAN                   |                          |                   |                      |                |                        |                 |                                             |                          |                           |                                         |                                       |                                       |                           |                       |        |
| Kode Pendekat             | Arus lalu lintas smp/jam | Kapasitas smp/jam | Derajat kejenuhan DS | Rasio hijau GR | Jumlah kendaraan antri |                 |                                             | Rasio kendaraan stop/smp | Jumlah kendaraan terhenti | Tundaan                                 |                                       |                                       |                           |                       |        |
|                           | Q                        | C                 | Q/C                  | g/c            | NQ <sub>1</sub>        | NQ <sub>2</sub> | Total NQ <sub>1</sub> +NQ <sub>2</sub> = NQ |                          |                           | Panjang antrian (m)                     | Tundaan lalu lintas rata-rata det/smp | Tundaan geometri rata-rata det/smp    | Tundaan rata-rata det/smp | Tundaan total det.smp |        |
| U                         | 918                      | 992               | 0.93                 | 0.28           | 5.1                    | 96.4            | 101.5                                       | 168.8                    | 844                       | 0.92                                    | 845                                   | 153.9                                 | 3.9                       | 157.9                 | 144947 |
| T                         | 738                      | 797               | 0.93                 | 0.25           | 5.0                    | 77.8            | 82.8                                        | 132.7                    | 737                       | 0.93                                    | 690                                   | 163.9                                 | 4.0                       | 167.8                 | 123903 |
| S                         | 406                      | 437               | 0.93                 | 0.15           | 4.6                    | 43.2            | 47.8                                        | 66.0                     | 367                       | 0.98                                    | 398                                   | 199.9                                 | 4.0                       | 203.9                 | 82691  |
| B                         | 794                      | 850               | 0.93                 | 0.26           | 5.5                    | 83.9            | 89.4                                        | 146.0                    | 608                       | 0.94                                    | 744                                   | 164.5                                 | 4.0                       | 168.5                 | 133807 |
| Arus kor. Q kor           |                          |                   |                      |                |                        |                 |                                             |                          |                           | TOTAL                                   | 2677                                  |                                       |                           | TOTAL                 | 493616 |
| Arus total Qtot           | 4234                     |                   |                      |                |                        |                 |                                             |                          |                           | Kendaraan terhenti rata-rata stop/smp : | 0.632                                 | Tundaan simpang rata-rata : (det/smp) |                           |                       | 116.6  |

## Formulir SIG- I Perencanaan 6 untuk Simpang Ngabean

| Lampiran 1. Data Kondisi Lapangan                                                   |                                                                                   | Tanggal :                                                                         |                                                                                   | Ditangani oleh : Krisnandio S.P.                                                    |                                     |                               |                         |                          |                                       |                            |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|-------------------------------|-------------------------|--------------------------|---------------------------------------|----------------------------|
| SIMPANG BERSINYAL                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| Formulir SIG-I                                                                      |                                                                                   | Simpang : Simpang 4 Ngabean                                                       |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| GEOMETRI                                                                            |                                                                                   | Ukuran kota : 431.939 Jiwa                                                        |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| PENGATURAN LALU LINTAS                                                              |                                                                                   | Perihal : 4 Fase                                                                  |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| LINGKUNGAN                                                                          |                                                                                   | Periode : Jam Puncak Sore                                                         |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| FASE SINYAL YANG ADA                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| g = 150                                                                             | g = 100                                                                           | g = 77                                                                            | g = 42                                                                            | g = 147                                                                             | Waktu siklus:<br>c = 389            |                               |                         |                          |                                       |                            |
|    |  |  |  |  | Waktu hilang<br>total :<br>LT1 = 20 |                               |                         |                          |                                       |                            |
| IG = 5                                                                              | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                            | IG = 5                                                                              |                                     |                               |                         |                          |                                       |                            |
|  |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| KONDISI LAPANGAN                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               |                         |                          |                                       |                            |
| Kode pendekat                                                                       | Tipe lingkungan jalan                                                             | Hambatan samping Tinggi / Rendah                                                  | Median Ya/Tidak                                                                   | Kelandaian +/- %                                                                    | Belok kiri langsung Ya/Tidak        | Jarak ke kendaraan parkir (m) | Lebar pendekat (m)      |                          |                                       |                            |
|                                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                     |                               | Pendekat W <sub>A</sub> | Masuk W <sub>MASUK</sub> | Belok kiri langsung W <sub>LTOR</sub> | Keluar W <sub>KELUAR</sub> |
| U                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 10.5                    | 10.5                     | 0                                     | 0                          |
| T                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | Y                                   | 0                             | 5.4                     | 3                        | 2.4                                   | 6                          |
| S                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 4.8                     | 4.8                      | 0                                     | 4.2                        |
| B                                                                                   | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 3                       | 3                        | 0                                     | 6                          |
| BST                                                                                 | COM                                                                               | Tinggi                                                                            | T                                                                                 |                                                                                     | T                                   | 0                             | 3.6                     | 3.6                      | 0                                     | 6                          |

## Formulir SIG- II Perencanaan 6 untuk Simpang Ngabean

| SIMPANG BERSINYAL |       |                                          |            | Tanggal :                   |            |                      |            | Ditangani oleh : Krisnandio S P |            |            |            |                                             |            |                         |            |                |            |                         |                                             |
|-------------------|-------|------------------------------------------|------------|-----------------------------|------------|----------------------|------------|---------------------------------|------------|------------|------------|---------------------------------------------|------------|-------------------------|------------|----------------|------------|-------------------------|---------------------------------------------|
| Formulir SIG-II   |       |                                          |            | Kota : Yogyakarta           |            |                      |            | Perihal : 4 Fase                |            |            |            |                                             |            |                         |            |                |            |                         |                                             |
| ARUS LALU LINTAS  |       |                                          |            | Simpang : Simpang 4 Ngabean |            |                      |            | Periode : Jam Puncak Sore       |            |            |            |                                             |            |                         |            |                |            |                         |                                             |
|                   |       | ARUS LALU LINTAS KENDARAAN BERMOTOR (MV) |            |                             |            |                      |            |                                 |            |            |            |                                             |            | KEND. TAK BERMOTOR (UM) |            |                |            |                         |                                             |
| Kode Pendekat     | Arah  | Kendaraan Ringan (LV)                    |            | Kendaraan Berat (HV)        |            |                      |            | Sepeda Motor (MC)               |            |            |            | Kendaraan Bermotor Total (Q <sub>MV</sub> ) |            |                         |            | Rasio Berbelok |            | Arus (Q <sub>UM</sub> ) | Rasio (Q <sub>UM</sub> ) (Q <sub>MV</sub> ) |
|                   |       | emp terlindung = 1,0                     |            | emp terlindung = 1,3        |            | emp terlindung = 0,2 |            | emp terlindung = 0,4            |            | snp / jam  |            | snp / jam                                   |            | snp / jam               |            | PRT            |            |                         |                                             |
|                   |       | emp terlawan = 1,0                       |            | emp terlawan = 1,3          |            |                      |            |                                 |            | kend/jam   |            | kend/jam                                    |            | kend/jam                |            |                | PLTOR      |                         |                                             |
|                   |       | snp / jam                                |            | snp / jam                   |            | snp / jam            |            | snp / jam                       |            | terlindung |            | terlindung                                  |            | terlindung              |            | kend / jam     |            |                         |                                             |
|                   |       | kend/jam                                 | terlindung | terlindung                  | terlindung | terlindung           | terlindung | terlindung                      | terlindung | terlindung | terlindung | terlindung                                  | terlindung | terlindung              | terlindung |                | terlindung | terlindung              |                                             |
| U                 | LT    | 185                                      | 185        | 8                           | 10         | 10                   | 1540       | 308                             | 616        | 1733       | 503        | 811                                         | 0.32       |                         |            | 2              |            |                         |                                             |
|                   | ST    | 268                                      | 268        | 12                          | 16         | 16                   | 1830       | 366                             | 732        | 2110       | 650        | 1016                                        |            |                         |            | 11             |            |                         |                                             |
|                   | RT    | 249                                      | 249        | 2                           | 3          | 3                    | 952        | 190                             | 381        | 1203       | 442        | 632                                         |            | 0.28                    |            | 15             |            |                         |                                             |
|                   | Total | 702                                      | 702        | 22                          | 29         | 29                   | 4322       | 864                             | 1729       | 5046       | 1595       | 2459                                        | 0.32       | 0.28                    | 0.28       | 28             | 0.01       |                         |                                             |
| T                 | LT    | 26                                       | 26         | 9                           | 12         | 12                   | 197        | 39                              | 79         | 232        | 77         | 117                                         | 0.12       |                         |            | 11             |            |                         |                                             |
|                   | ST    | 187                                      | 187        | 12                          | 16         | 16                   | 1709       | 342                             | 684        | 1908       | 544        | 886                                         |            |                         |            | 5              |            |                         |                                             |
|                   | RT    | 0                                        | 0          | 0                           | 0          | 0                    | 0          | 0                               | 0          | 0          | 0          | 0                                           |            | 0.00                    |            |                |            |                         |                                             |
|                   | Total | 213                                      | 213        | 21                          | 27         | 27                   | 1906       | 381                             | 762        | 2140       | 622        | 1003                                        | 0.12       | 0.00                    | 0.00       | 16             | 0.01       |                         |                                             |
| S                 | LT    | 72                                       | 72         | 10                          | 13         | 13                   | 662        | 132                             | 265        | 744        | 217        | 350                                         | 0.60       |                         |            | 10             |            |                         |                                             |
|                   | ST    | 0                                        | 0          | 0                           | 0          | 0                    | 0          | 0                               | 0          | 0          | 0          | 0                                           |            |                         |            | 0              |            |                         |                                             |
|                   | RT    | 75                                       | 75         | 7                           | 9          | 9                    | 302        | 60                              | 121        | 384        | 145        | 205                                         |            | 0.40                    |            | 15             |            |                         |                                             |
|                   | Total | 147                                      | 147        | 17                          | 22         | 22                   | 964        | 193                             | 386        | 1128       | 362        | 555                                         | 0.60       | 0.40                    | 0.40       | 25             | 0.02       |                         |                                             |
| B                 | LT    | 0                                        | 0          | 0                           | 0          | 0                    | 0          | 0                               | 0          | 0          | 0          | 0                                           | 0.00       |                         |            |                |            |                         |                                             |
|                   | ST    | 0                                        | 0          | 0                           | 0          | 0                    | 0          | 0                               | 0          | 0          | 0          | 0                                           |            |                         |            |                |            |                         |                                             |
|                   | RT    | 34                                       | 34         | 34                          | 0          | 0                    | 348        | 70                              | 139        | 382        | 104        | 173                                         |            | 1.00                    |            | 1              |            |                         |                                             |
|                   | Total | 34                                       | 34         | 34                          | 0          | 0                    | 348        | 70                              | 139        | 382        | 104        | 173                                         | 0.00       | 1.00                    | 1.00       | 1              | 0.00       |                         |                                             |
| BST               | LT    | 0                                        | 0          | 0                           | 0          | 0                    | 0          | 0                               | 0          | 0          | 0          | 0                                           | 0.00       |                         |            |                |            |                         |                                             |
|                   | ST    | 256                                      | 256        | 256                         | 9          | 12                   | 1311       | 262                             | 524        | 1576       | 530        | 792                                         |            |                         |            | 10             |            |                         |                                             |
|                   | RT    | 0                                        | 0          | 0                           | 0          | 0                    | 0          | 0                               | 0          | 0          | 0          | 0                                           |            | 0.00                    |            |                |            |                         |                                             |
|                   | Total | 256                                      | 256        | 256                         | 9          | 12                   | 1311       | 262                             | 524        | 1576       | 530        | 792                                         | 0.00       | 0.00                    | 0.00       | 10             | 0.01       |                         |                                             |

Formulir SIG- III Perencanaan 6 untuk Simpang Ngabean

|                                                                                                              |    |                                                                       |             |                       |             |                   |       |
|--------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------|-------------|-----------------------|-------------|-------------------|-------|
| <p><b>SIMPANG BERSINYAL</b><br/>Formulir SIG-III</p> <p><b>WAKTU ANTAR HIJAU</b><br/><b>WAKTU HILANG</b></p> |    | Tanggal                                                               |             | : 20 November 2020    |             |                   |       |
|                                                                                                              |    | Ditangani Oleh                                                        |             | : Krisnandio          |             |                   |       |
|                                                                                                              |    | Kota                                                                  |             | : Yogyakarta          |             |                   |       |
|                                                                                                              |    | Simpang                                                               |             | : Ngabean             |             |                   |       |
|                                                                                                              |    | Perihal                                                               |             | : 4 - Fase hijau awal |             |                   |       |
| Berangkat                                                                                                    |    | Lalu Lintas Datang                                                    |             |                       |             | Waktu Merah Semua |       |
| Kode                                                                                                         | VE | Kode                                                                  | Utara       | Timur                 | Selatan     |                   | Barat |
|                                                                                                              |    | VA                                                                    | 10          | 10                    | 10          | 10                |       |
| Utara                                                                                                        | 10 | Jarak Berangkat - Datang (m)                                          |             |                       |             | 16+5-14           |       |
|                                                                                                              |    | Waktu Berangkat - Datang (det)                                        |             |                       |             | 1.6+0.5-1.4       | 0.7   |
| Timur                                                                                                        | 10 | Jarak Berangkat - Datang (m)                                          |             |                       | 24+5-19     |                   |       |
|                                                                                                              |    | Waktu Berangkat - Datang (det)                                        |             |                       | 2.4+0.5-1.9 |                   | 1     |
| Selatan                                                                                                      | 10 | Jarak Berangkat - Datang (m)                                          | 47+5-34     |                       |             |                   |       |
|                                                                                                              |    | Waktu Berangkat - Datang (det)                                        | 4.7+0.5-3.4 |                       |             |                   | 0.9   |
| Barat                                                                                                        | 10 | Jarak Berangkat - Datang (m)                                          |             | 38+5-36               |             |                   |       |
|                                                                                                              |    | Waktu Berangkat - Datang (det)                                        |             | 3.8+0.5-3.6           |             |                   | 0.8   |
|                                                                                                              |    | Penentuan Waktu Merah Semua                                           |             |                       |             |                   |       |
|                                                                                                              |    | Fase 1                                                                | →           | Fase 2                |             |                   | 2     |
|                                                                                                              |    | Fase 2                                                                | →           | Fase 3                |             |                   | 2     |
|                                                                                                              |    | Fase 3                                                                | →           | Fase 4                |             |                   | 2     |
|                                                                                                              |    | Fase 4                                                                | →           | Fase 1                |             |                   | 2     |
|                                                                                                              |    | Waktu Kuning Total                                                    |             |                       |             |                   | 12    |
|                                                                                                              |    | Waktu Hilang Total (LTI)= Merah semua Total+Waktu kuning (det/siklus) |             |                       |             |                   | 20    |

## Formulir SIG- IV Perencanaan 6 untuk Simpang Ngabean

| SIMPANG BERSINYAL<br>Formulir SIG-IV     |                      |               |                          | Tanggal :                   |            | Ditangani oleh : Krisnandio SP  |  |
|------------------------------------------|----------------------|---------------|--------------------------|-----------------------------|------------|---------------------------------|--|
| PENENTUAN WAKTU SINYAL<br>KAPASITAS      |                      |               |                          | Kota : Yogyakarta           |            | Perihal : 4 Fase                |  |
|                                          |                      |               |                          | Simpang : Simpang 4 Ngabean |            | Periode : Jam Puncak Sore       |  |
|                                          |                      |               |                          |                             |            |                                 |  |
| Distribusi arus lalu lintas<br>(smp/jam) |                      |               |                          | Fase 1                      |            | Fase 2                          |  |
| U                                        |                      |               |                          | Fase 3                      |            | Fase 4                          |  |
| Kode Pendekat                            | Hijau dalam fase no. | Tipe pendekat | Rasio kendaraan berbelok | Arus RT (smp/jam)           |            | Arus jenuh (smp/jam hijau)      |  |
|                                          |                      |               |                          | Arah diri                   | Arah lawan | Faktor-faktor penyesuaian       |  |
|                                          |                      |               |                          |                             |            | Nilai disesuaikan smp/jam hijau |  |
|                                          |                      |               |                          |                             |            | Hanya tipe P                    |  |
|                                          |                      |               |                          |                             |            | Belok kanan                     |  |
|                                          |                      |               |                          |                             |            | Belok kiri                      |  |
|                                          |                      |               |                          |                             |            | Parkir                          |  |
|                                          |                      |               |                          |                             |            | Kelambatan samping              |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT                             |  |
|                                          |                      |               |                          |                             |            | Fp                              |  |
|                                          |                      |               |                          |                             |            | FG                              |  |
|                                          |                      |               |                          |                             |            | Fsf                             |  |
|                                          |                      |               |                          |                             |            | Fcs                             |  |
|                                          |                      |               |                          |                             |            | FRT</                           |  |

Formulir SIG- VIX Perencanaan 6 untuk Simpang Ngabean

| SIMPANG BERSINYAL              |                          |                   |                      |                | Tanggal :                   |                 | Ditangani oleh : Krisnandio S P             |                   |                          |                                         |                           |                                       |                                    |                                          |                       |
|--------------------------------|--------------------------|-------------------|----------------------|----------------|-----------------------------|-----------------|---------------------------------------------|-------------------|--------------------------|-----------------------------------------|---------------------------|---------------------------------------|------------------------------------|------------------------------------------|-----------------------|
| Formulir SIG V                 |                          |                   |                      |                | Kota : Yogyakarta           |                 | Perihal : 4 Fase                            |                   |                          |                                         |                           |                                       |                                    |                                          |                       |
| PANJANG ANTRIAN                |                          |                   |                      |                | Simpang : Simpang 4 Ngabean |                 |                                             |                   | Perode : Jam Puncak Sore |                                         |                           |                                       |                                    |                                          |                       |
| JUMLAH KENDARAAN TERHENTI      |                          |                   |                      |                | Waktu siklus :              |                 | 389                                         |                   | detik                    |                                         |                           |                                       |                                    |                                          |                       |
| TUNDAAN                        |                          |                   |                      |                |                             |                 |                                             |                   |                          |                                         |                           |                                       |                                    |                                          |                       |
| Kode Pendekat                  | Arus lalu lintas smp/jam | Kapasitas smp/jam | Derajat kejenuhan DS | Rasio hijau GR | Jumlah kendaraan antri      |                 |                                             |                   | Panjang antrian (m)      | Rasio kendaraan stop/smp                | Jumlah kendaraan terhenti | Tundaan                               |                                    |                                          |                       |
|                                |                          |                   |                      |                | NQ <sub>1</sub>             | NQ <sub>2</sub> | Total NQ <sub>1</sub> +NQ <sub>2</sub> = NQ | NQ <sub>MAX</sub> |                          |                                         |                           | Tundaan lalu lintas rata-rata det/smp | Tundaan geometri rata-rata det/smp | Tundaan rata-rata det/smp                | Tundaan total det.smp |
|                                | Q                        | C                 | Q/C                  | g/c            |                             |                 |                                             |                   | QL                       | NS                                      | N <sub>sv</sub>           | DT                                    | DG                                 | D=DT+DG                                  | D x Q                 |
| U                              | 1595                     | 1921              | 0.83                 | 0.39           | 1.9                         | 155.8           | 157.7                                       | 275.2             | 524                      | 0.82                                    | 1313                      | 111.6                                 | 3.9                                | 115.5                                    | 184255                |
| T                              | 544                      | 634               | 0.86                 | 0.26           | 2.4                         | 56.1            | 58.5                                        | 89.0              | 593                      | 0.89                                    | 487                       | 151.4                                 | 3.7                                | 155.0                                    | 84404                 |
| S                              | 362                      | 440               | 0.82                 | 0.20           | 1.7                         | 37.5            | 39.2                                        | 54.0              | 225                      | 0.90                                    | 327                       | 163.7                                 | 4.2                                | 167.9                                    | 60758                 |
| B                              | 104                      | 178               | 0.58                 | 0.11           | 0.2                         | 10.7            | 10.9                                        | 17.0              | 113                      | 0.87                                    | 90                        | 169.2                                 | 4.3                                | 173.4                                    | 17968                 |
| BST                            | 530                      | 592               | 0.89                 | 0.38           | 3.4                         | 53.8            | 57.2                                        | 87.0              | 483                      | 0.90                                    | 476                       | 134.3                                 | 4.2                                | 138.5                                    | 73384                 |
| Arus kor.<br>Q kor             |                          |                   |                      |                |                             |                 |                                             |                   |                          | TOTAL                                   | 2694                      |                                       |                                    | TOTAL                                    | 425556                |
| Arus total<br>Q <sub>tot</sub> | 3933                     |                   |                      |                |                             |                 |                                             |                   |                          | Kendaraan terhenti rata-rata stop/smp : | 0.685                     |                                       |                                    | Tundaan simpang rata-rata :<br>(det/smp) | 108.2                 |
|                                |                          |                   |                      |                |                             |                 |                                             |                   |                          |                                         |                           |                                       |                                    |                                          |                       |



Universitas Atma Jaya Yogyakarta

### Tugas Akhir

Analisis Koordinasi Simpang Bersinyal  
(Studi Kasus: Simpang Empat  
Wirobrajan dan Simpang Empat  
Ngabean)

### Digambar Oleh:

Krisnandio Sepnanda Patrias  
Mahasiswa

### Lokasi Gambar:

Simpang Wirobrajan dan  
Simpang Ngabean

### Disetujui Oleh

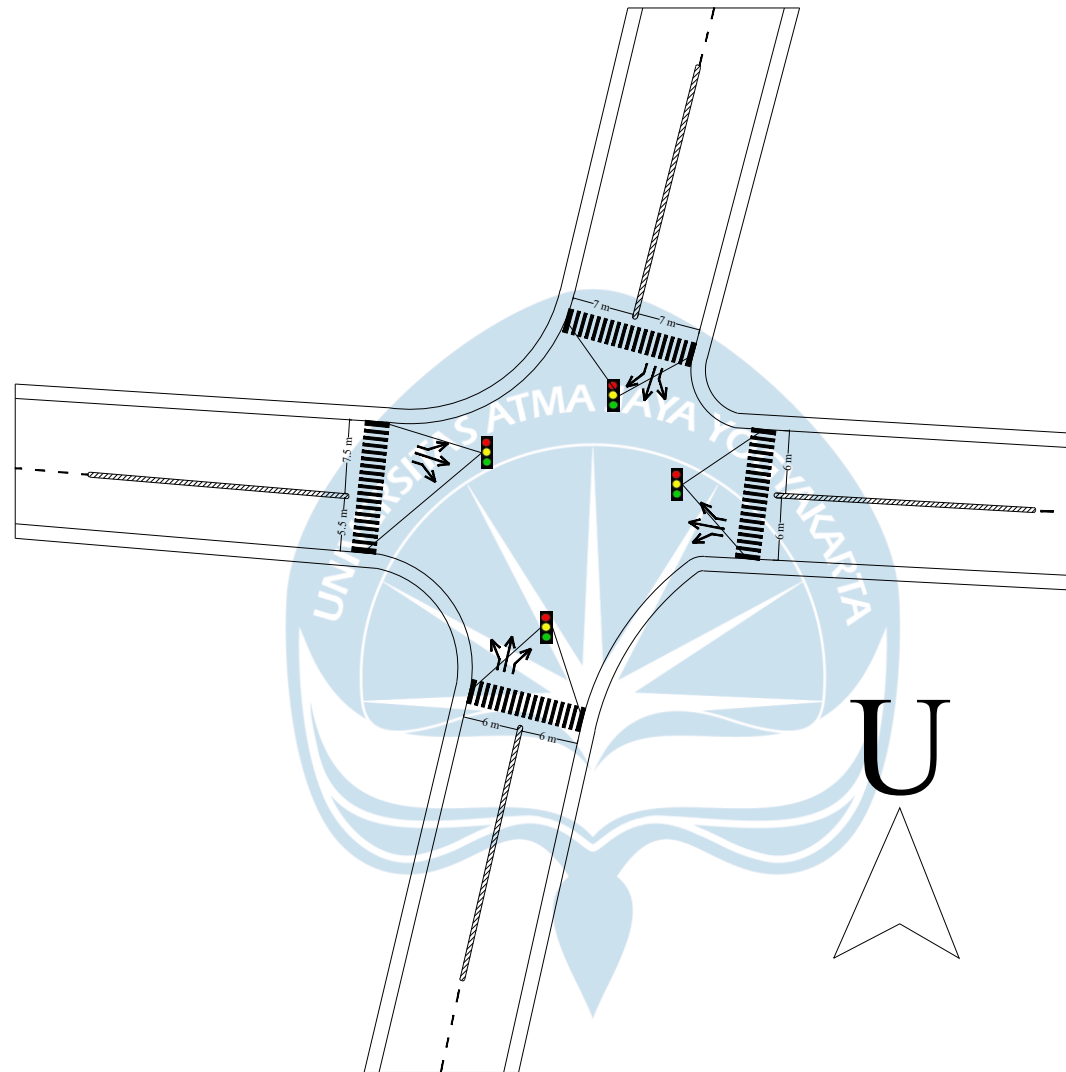
Ir. Yohanes Lulie, M.T  
Dosen Pembimbing

### Skala :

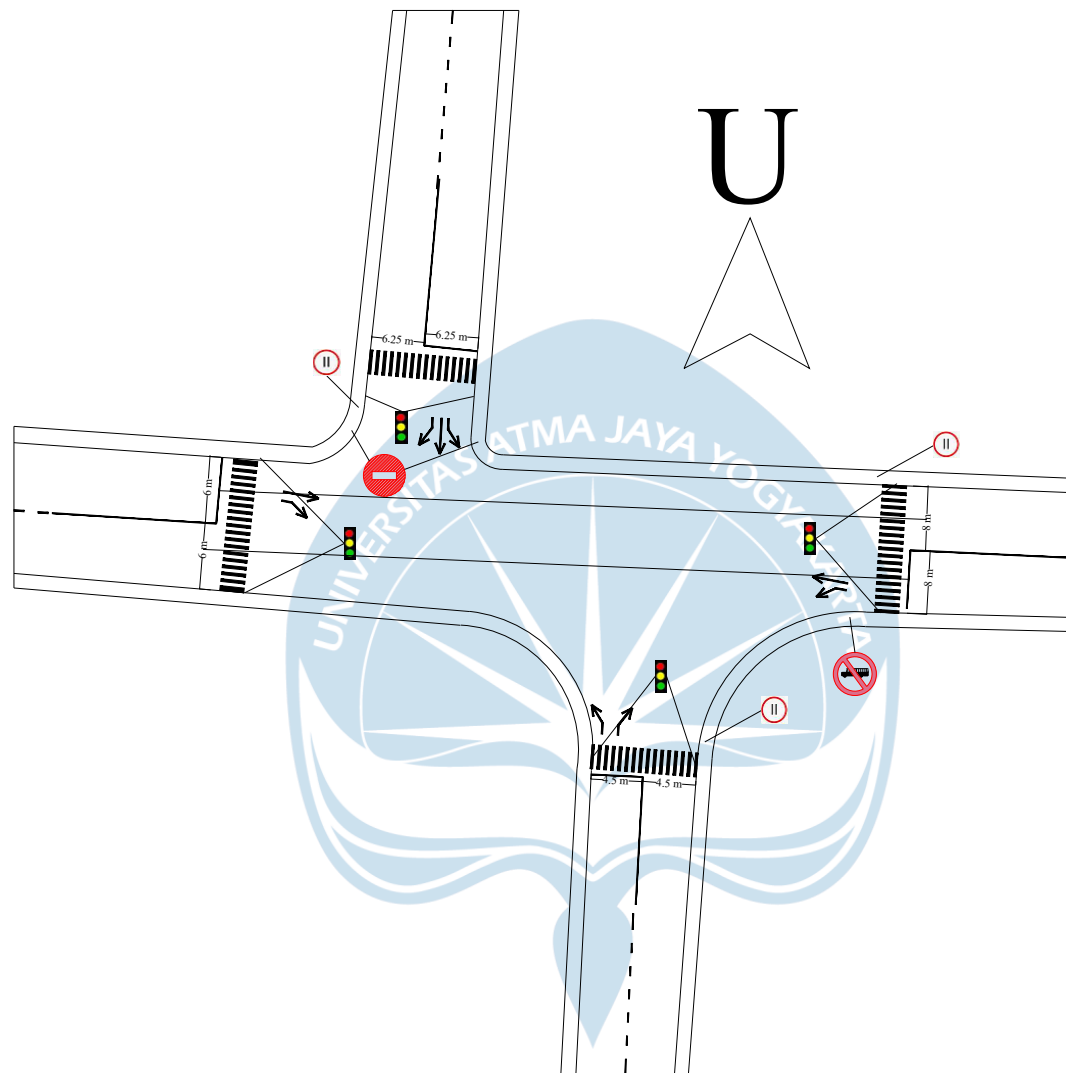
1:2500

### No:

1



| Tugas Akhir                                                                                                                | Digambar Oleh:                                   | Lokasi Gambar:            | Disetujui Oleh                                     | Skala :      | No:      |
|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------|----------------------------------------------------|--------------|----------|
| <p>Analisis Koordinasi Simpang Bersinyal<br/>(Studi Kasus: Simpang Empat<br/>Wirobrajan dan Simpang Empat<br/>Ngabean)</p> | <p>Krisnandio Sepnanda Patrias<br/>Mahasiswa</p> | <p>Simpang Wirobrajan</p> | <p>Ir. Yohanes Lulie, M.T<br/>Dosen Pembimbing</p> | <p>1:800</p> | <p>2</p> |



| Tugas Akhir                                                                                                      | Digambar Oleh:                           | Lokasi Gambar:  | Disetujui Oleh                             | Skala : | No: |
|------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------|--------------------------------------------|---------|-----|
| Analisis Koordinasi Simpang Bersinyal<br>(Studi Kasus: Simpang Empat<br>Wirobrajan dan Simpang Empat<br>Ngabean) | Krisnandio Sepnanda Patrias<br>Mahasiswa | Simpang Ngabean | Ir. Yohanes Lulie, M.T<br>Dosen Pembimbing | 1:800   | 3   |