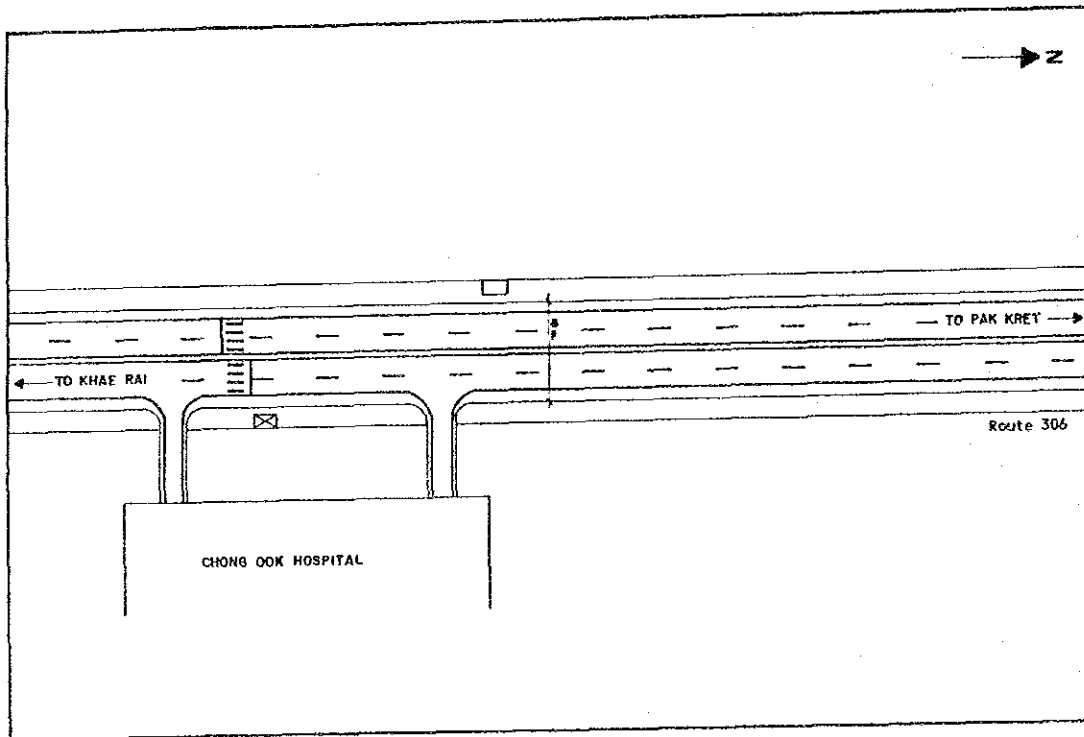


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | | |
|------------------------------------|------------------------|---------------------|-------------------------------|-------------------------|-----------------------|---------------------------------------|---|-----------------|
| LOCATION NO. | 37 | | LOCATION NAME | Soung Og Hospital | | | | |
| ROUTE NO | 306 | CONTROL SECTION NO. | 103 | K.P OF PROBLEM LOCATION | K.P 8.000 - K.P 9.000 | | ROAD CONDITION | Roadway Section |
| K.P OF CONTROL SECT | K.P 6.000 - K.P 26.674 | | | | | | DISTRICT CODE | 416 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | PATHUMTHANI | | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 49,189 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 31.3 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 425 | |
| | (PEAK HOUR) MAJOR ROAD | 3,356 | | (PEAK HOUR) MAJOR ROAD | 32.8 | | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | 22.5 |
| NO. OF ACCIDENTS(CASES) | 1 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | WHOLE CONTROL SECTION | 44.6 | |
| | | | | (INJURIES) | 2 | | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

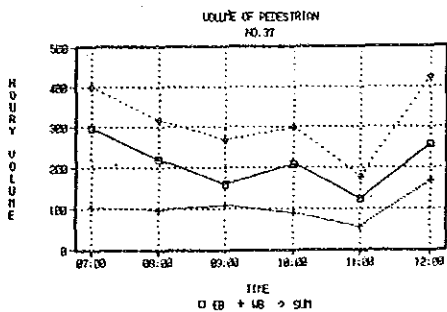
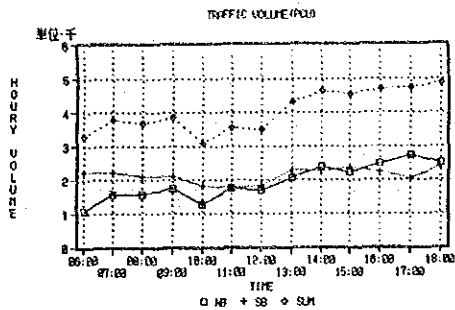
This is the intersection of R306 and a feeder road leading to a hospital. The R306 section is an undivided four-lane road section.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STLOY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | REMARKS | | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---------|---|---|
| | | | | | ADT (POD/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) |
| 37 | 306 | 103 | 8+000 - 9+000 | 1.000 | 24,370 | 24,370 | 1 | 0 | 2 | 2 | 1.0 | 11.2 | 0.0 | 22.5 | 22.5 | 44.6 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | | |
|-----|-----------|---------------------|---|-------------|-----------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT HURNING PASSENGER | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | SUM | |
| 37 | 306 | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | REMARKS | | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|---|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | SUM | | | |
| 37 | 306 | 103 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |

COMMENTS ON TRAFFIC CONDITION

R306 is a primary highway with a high traffic volume (RHV is 31%).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (only 1 case recorded).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

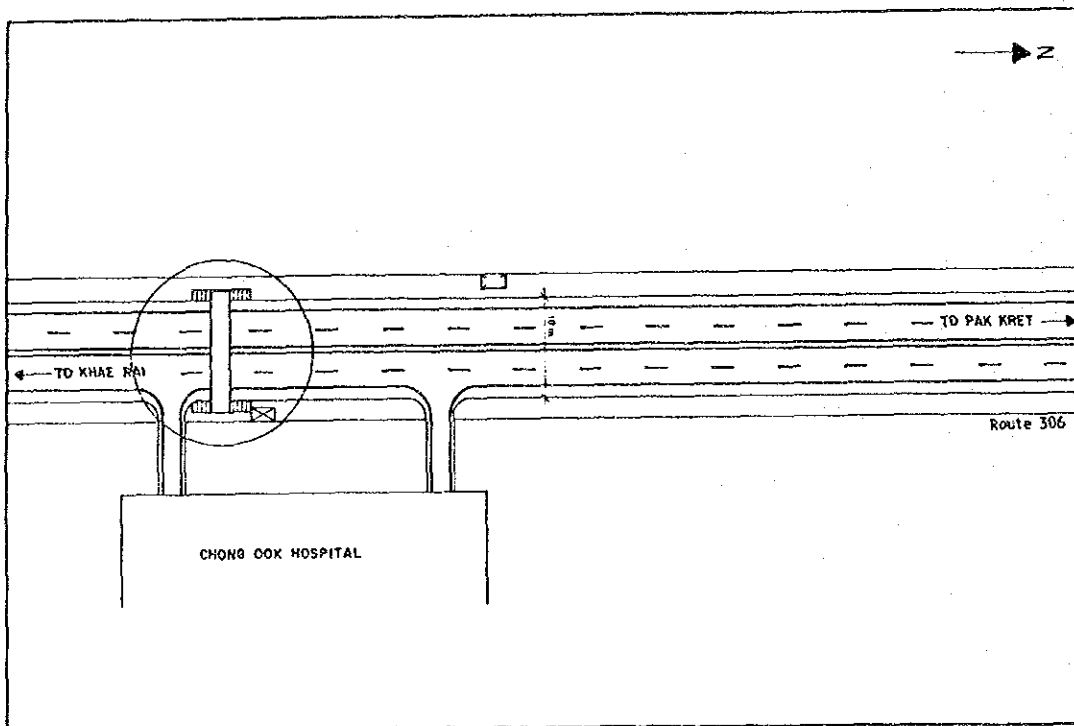
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

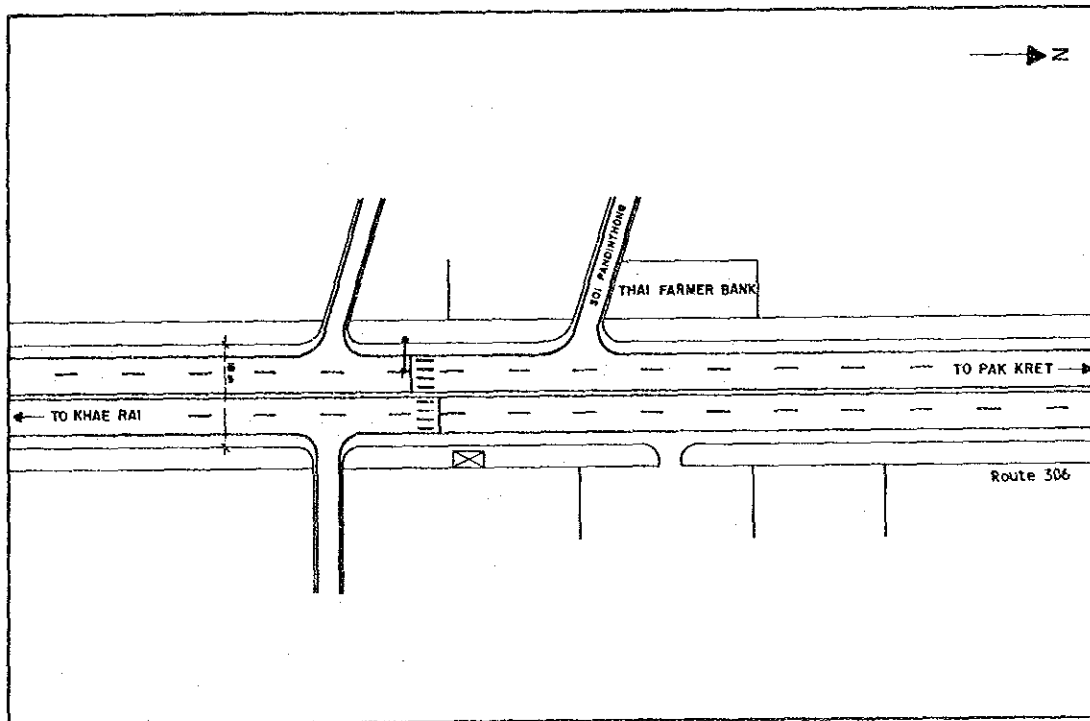


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|--------------------------|---------------------|-------------------------------|--------------------------|-------------------------|--|-----------------|
| LOCATION NO. | 38 | | LOCATION NAME | | Thai Farmer Bank | | |
| ROUTE NO. | 306 | CONTROL SECTION NO. | 103 | K.P. OF PROBLEM LOCATION | K.P. 8.500 - K.P. 9.500 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 6.000 - K.P. 26.674 | | | | | DISTRICT CODE | 416 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | PATHUMTHANI | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 49,189 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 31.3 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 294 |
| | (PEAK HOUR) MAJOR ROAD | 3,356 | | (PEAK HOUR) MAJOR ROAD | 32.8 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM) | 101.2 |
| NO. OF ACCIDENTS(CASES) | 7 | | CASUALTIES (PERSONS) | (FATALITIES) | 6 | WHOLE CONTROL SECTION | 44.6 |
| | | | | (INJURIES) | 3 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

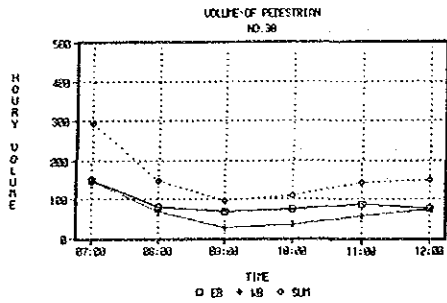
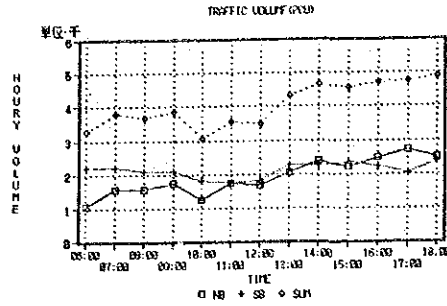
This is the intersection of R306 and a soi. The R306 section is a four-lane section with no median.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANNELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) |
| 38 | 306 | 103 | 8+500 - 9+500 | 1.000 | 24,370 | 24,370 | 7 | 6 | 3 | 9 | 7.0 | 78.7 | 67.5 | 33.7 | 101.2 | 44.6 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | | | |
| 38 | 306 | 103 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 7 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | REMARKS | | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|---------|---|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 38 | 306 | 103 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 7 | |

COMMENTS ON TRAFFIC CONDITION

R306 is a primary highway with a high traffic volume (RHV is 31%).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (only 7 cases recorded), of which 4 were caused by speeding.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

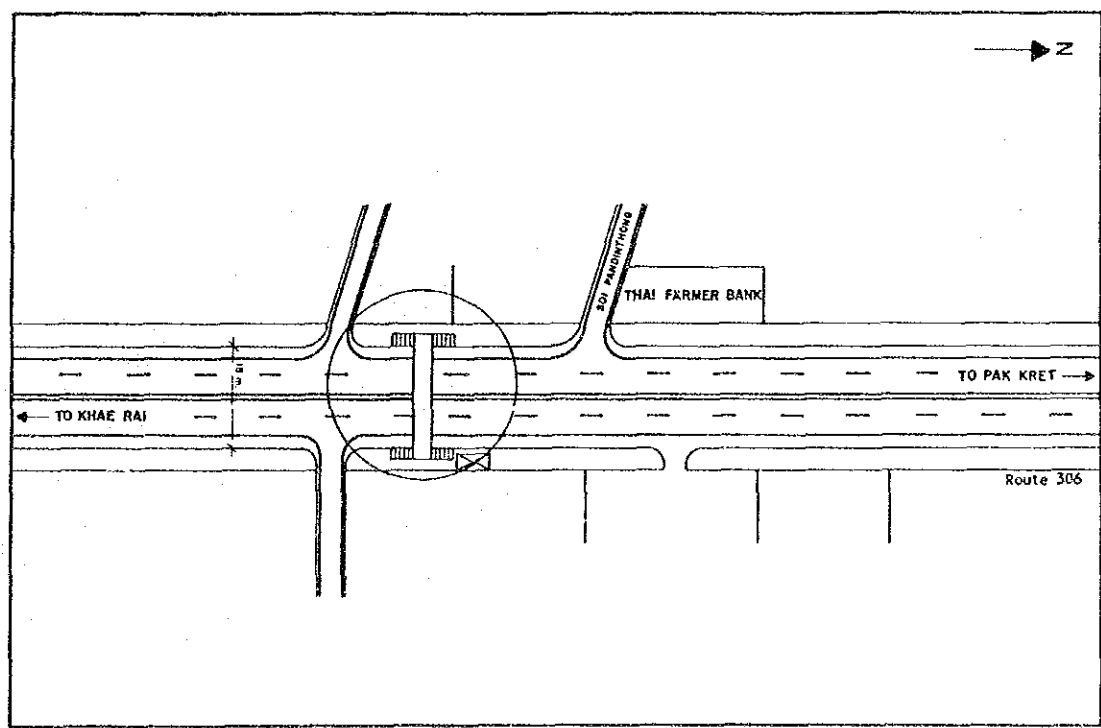
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

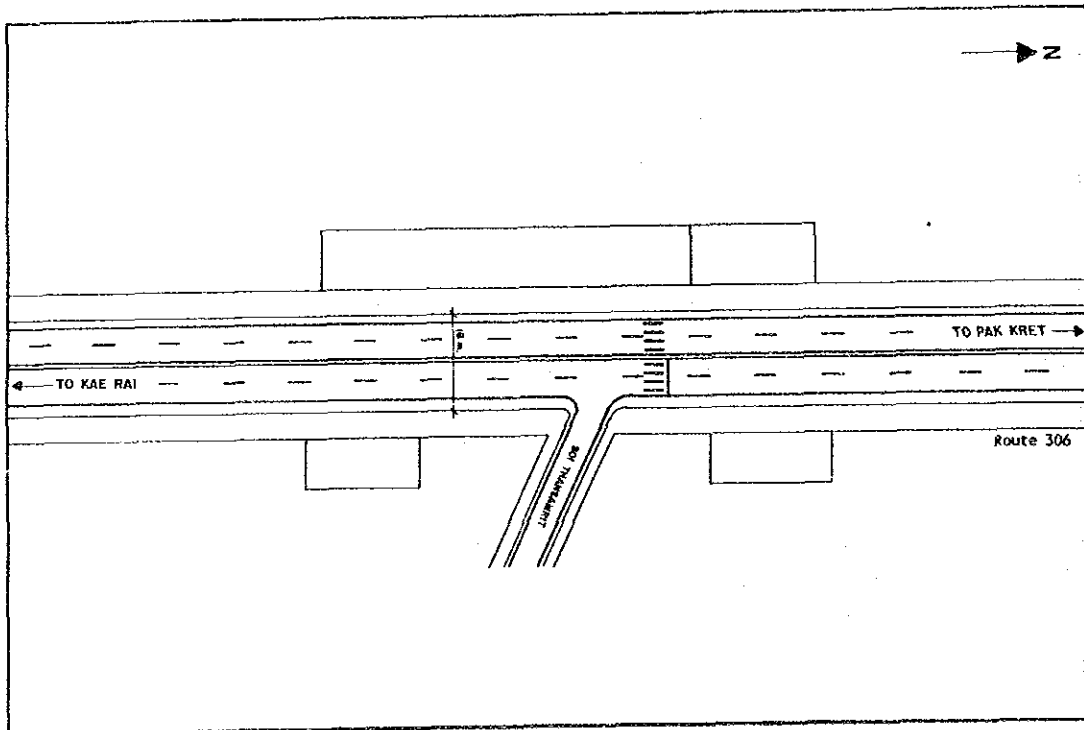


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|--------------------------|---------------------|-------------------------------|--------------------------|--------------------------|---|-----------------|
| LOCATION NO. | 39 | | LOCATION NAME | | Tansamrit Pattana | | |
| ROUTE NO. | 306 | CONTROL SECTION NO. | 103 | K.P. OF PROBLEM LOCATION | K.P. 9.000 - K.P. 10.000 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 6.000 - K.P. 26.674 | | | | | DISTRICT CODE | 416 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | PATHUMTHANI | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 49,189 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 31.3 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 331 |
| | (PEAK HOUR) MAJOR ROAD | 3,356 | | (PEAK HOUR) MAJOR ROAD | 32.8 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | 179.9 |
| NO. OF ACCIDENTS(CASES) | 10 | | CASUALTIES (PERSONS) | (FATALITIES) | 13 | WHOLE CONTROL SECTION | 44.6 |
| | | | | (INJURIES) | 3 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

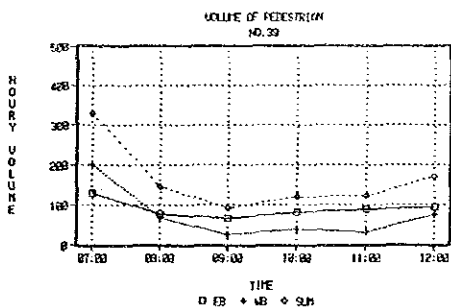
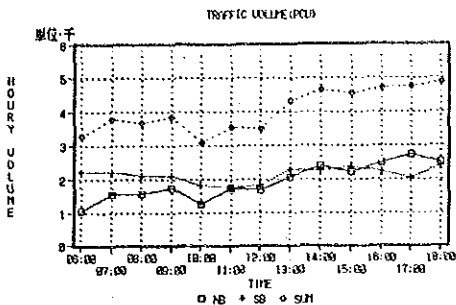
This is the intersection of R306 and a soi. The R306 section is a four-lane section with no median. R306 has an extra lane serving the soi.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANNELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS | | |
|-------------------|-----------|---------------------|----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---|---------|---------------------------------------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | | | INJURY (CASUALTIES/100 MIL. VEH. KM.) | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) |
| 39 | 306 | 103 | 9+000 - 10+000 | 1.000 | 24,370 | 24,370 | 10 | 15 | 3 | 16 | 10.0 | 112.4 | 146.1 | 33.7 | 179.9 | 64.6 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|----|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | | | |
| 39 | 306 | 103 | 2 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 10 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | SUM | REMARKS |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|---|-----|---------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 39 | 306 | 103 | 4 | 3 | 1 | 0 | 0 | 0 | 0 | 2 | 10 | |

COMMENTS ON TRAFFIC CONDITION

R306 is a primary highway with a high traffic volume (RHV is 31%).

COMMENTS ON ACCIDENT CONDITION

There were four accidents due to speeding, and three due to traffic running off the road.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

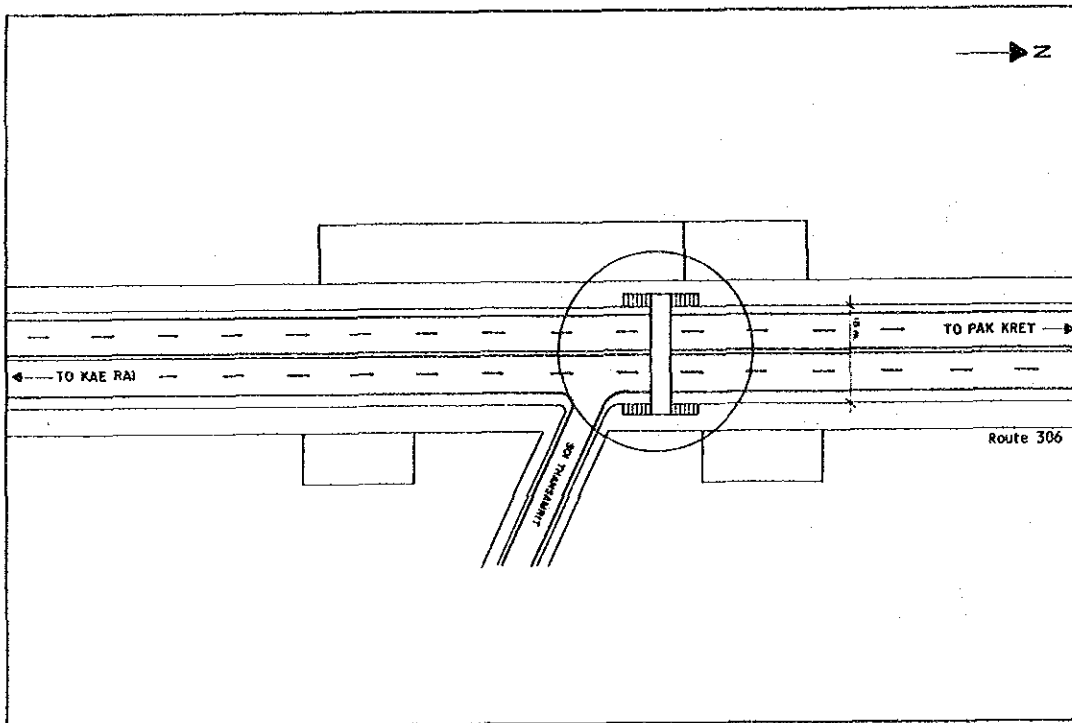
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

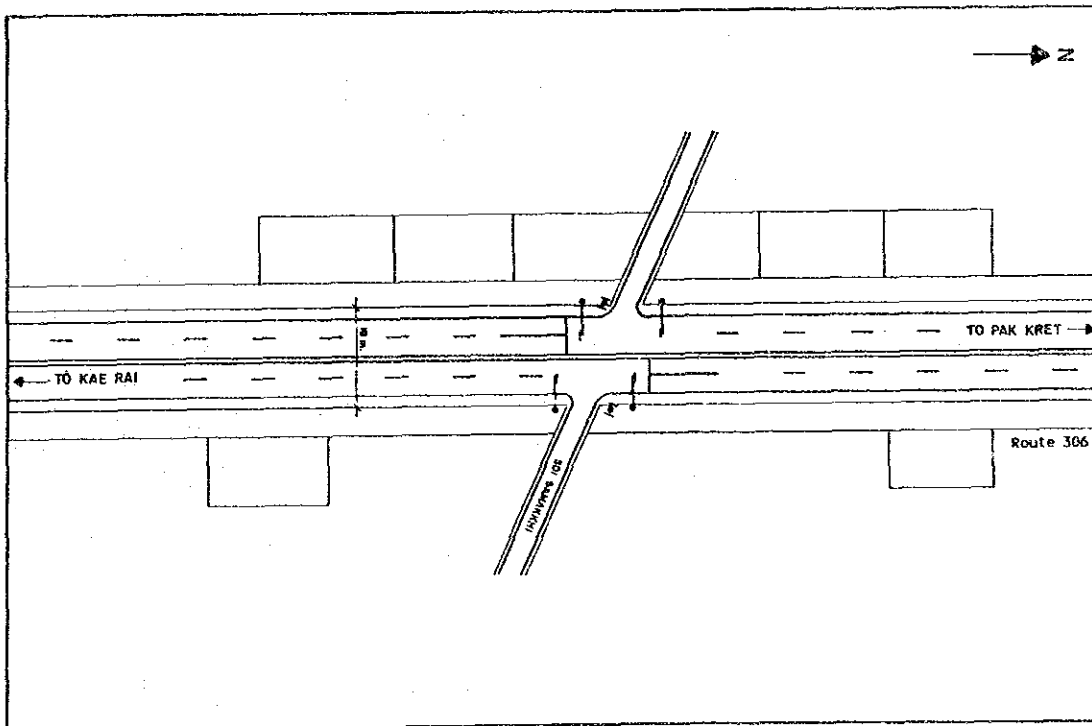


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|--------------------------|---------------------|-------------------------------|--------------------------|---------------------------|--|-----------------|
| LOCATION NO. | 40 | | LOCATION NAME | | Samak Ki | | |
| ROUTE NO. | 306 | CONTROL SECTION NO. | 103 | K.P. OF PROBLEM LOCATION | K.P. 11.000 - K.P. 12.000 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 6.000 - K.P. 26.674 | | | | | | |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | PATHUMTHANI | | DISTRICT CODE | 416 |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 49,189 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 31.3 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 845 |
| | (PEAK HOUR) MAJOR ROAD | 3,356 | | (PEAK HOUR) MAJOR ROAD | 32.8 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM) | 101.2 |
| NO. OF ACCIDENTS(CASES) | 5 | | CASUALTIES (PERSONS) | (FATALITIES) | 2 | WHOLE CONTROL SECTION | 44.6 |
| | | | | (INJURIES) | 7 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

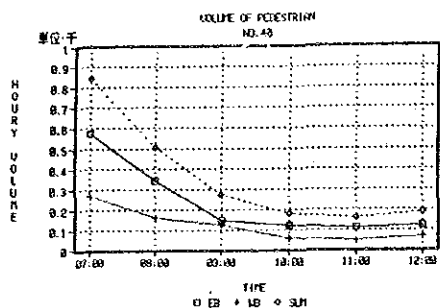
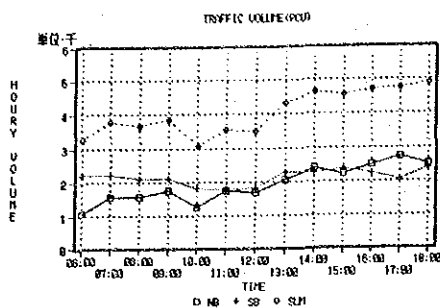
This is the intersection of R306 and a soi. The R306 section is a four-lane section with no median. Traffic signals have been installed but are not operational.

TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | 0 |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) |
| 40 | 306 | 103 | 11+000 - 12+000 | 1.000 | 24,370 | 24,370 | 5 | 2 | 7 | 9 | 5.0 | 56.2 | 22.5 | 78.7 | 101.2 | 44.6 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|----------------------|----------------|------------------|-----------------|------------------|-----------|-----|--------|---|
| | | | HIT PEDES-TRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTER-SECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | | OTHERS | |
| 40 | 306 | 103 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | SUM | REMARKS | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 40 | 306 | 103 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | |

COMMENTS ON TRAFFIC CONDITION

R306 is a primary highway with a high traffic volume (RHV is 31%).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (only 5 cases recorded), of which three involved vehicles running off the road.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

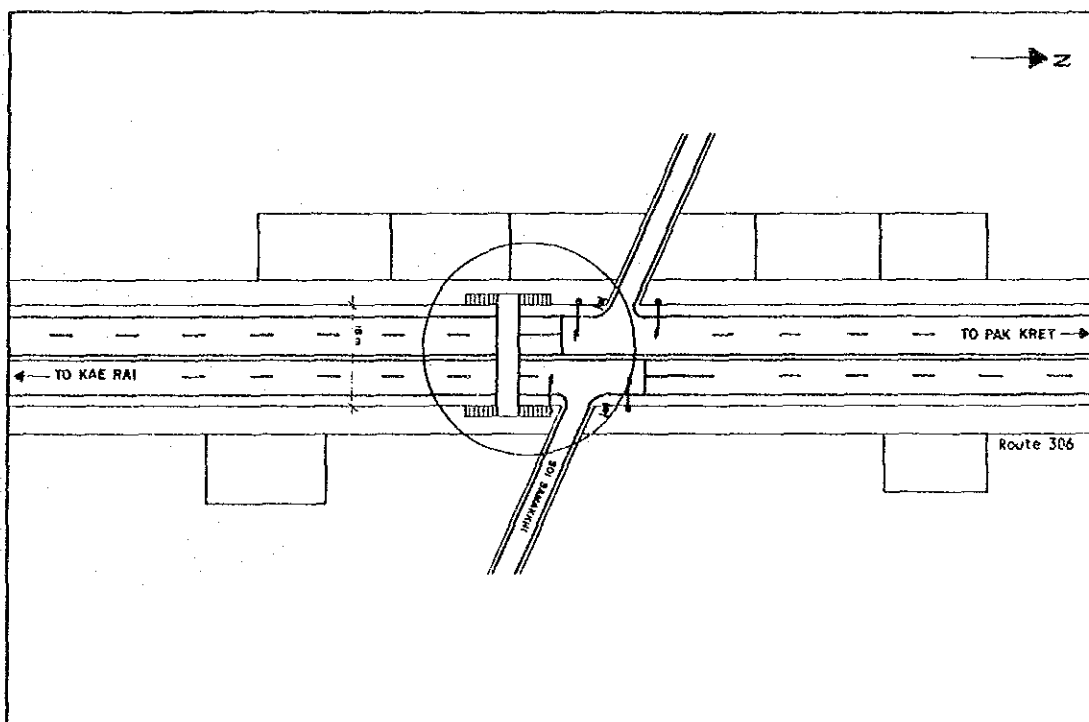
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

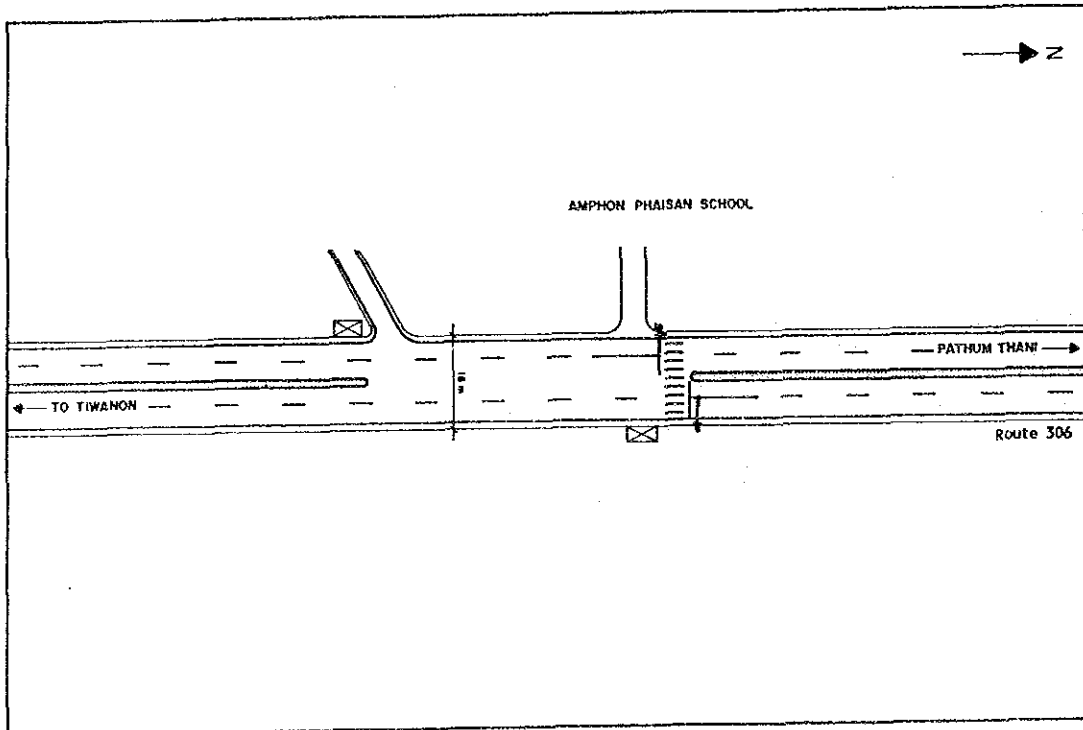


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form-1)

| | | | | | | | |
|------------------------------------|--------------------------|---------------------|-------------------------------|--------------------------|---------------------------|---|-----------------|
| LOCATION NO. | 41 | | LOCATION NAME | | Amphon Paisan School | | |
| ROUTE NO. | 306 | CONTROL SECTION NO. | 103 | K.P. OF PROBLEM LOCATION | K.P. 16.000 - K.P. 17.000 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT | K.P. 6.000 - K.P. 26.674 | | | | | DISTRICT CODE | 416 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | PATHUMTHANI | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 49,189 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 31.3 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 205 |
| | (PEAK HOUR) MAJOR ROAD | 3,356 | | (PEAK HOUR) MAJOR ROAD | 32.8 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | 33.7 |
| NO. OF ACCIDENTS(CASES) | 2 | | CASUALTIES (PERSONS) | (FATALITIES) | 2 | WHOLE CONTROL SECTION | 44.6 |
| | | | | (INJURIES) | 1 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

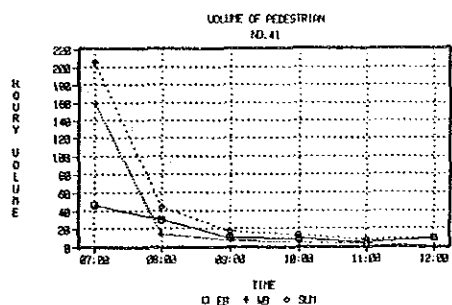
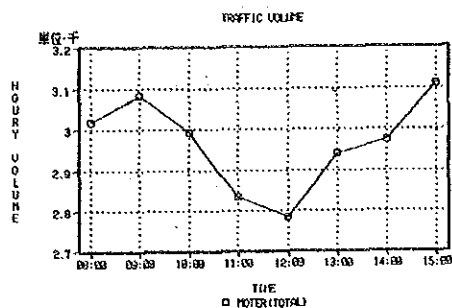
This is the uninterrupted flow section of R306, with a school facing its roadway. It has a narrow median and a median opening. Pedestrian push-button signals have been installed.

TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | 0 |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCI/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) |
| 41 | 306 | 103 | 16+000 - 17+000 | 1.000 | 24,370 | 24,370 | 2 | 2 | 1 | 3 | 2.0 | 22.5 | 22.5 | 11.2 | 33.7 | 44.6 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | | | |
| 41 | 306 | 103 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | SUM | REMARKS |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|---|-----|---------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 41 | 306 | 103 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | |

COMMENTS ON TRAFFIC CONDITION

R306 is a primary highway with a high traffic volume (RHV is 31%).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (2 cases).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

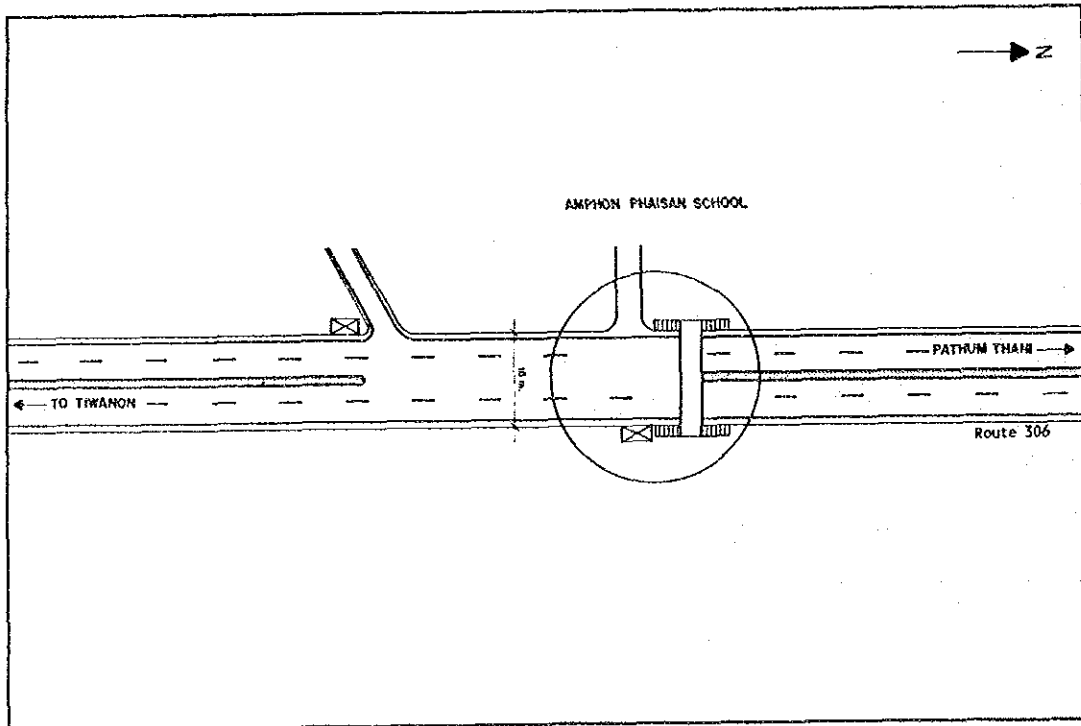
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

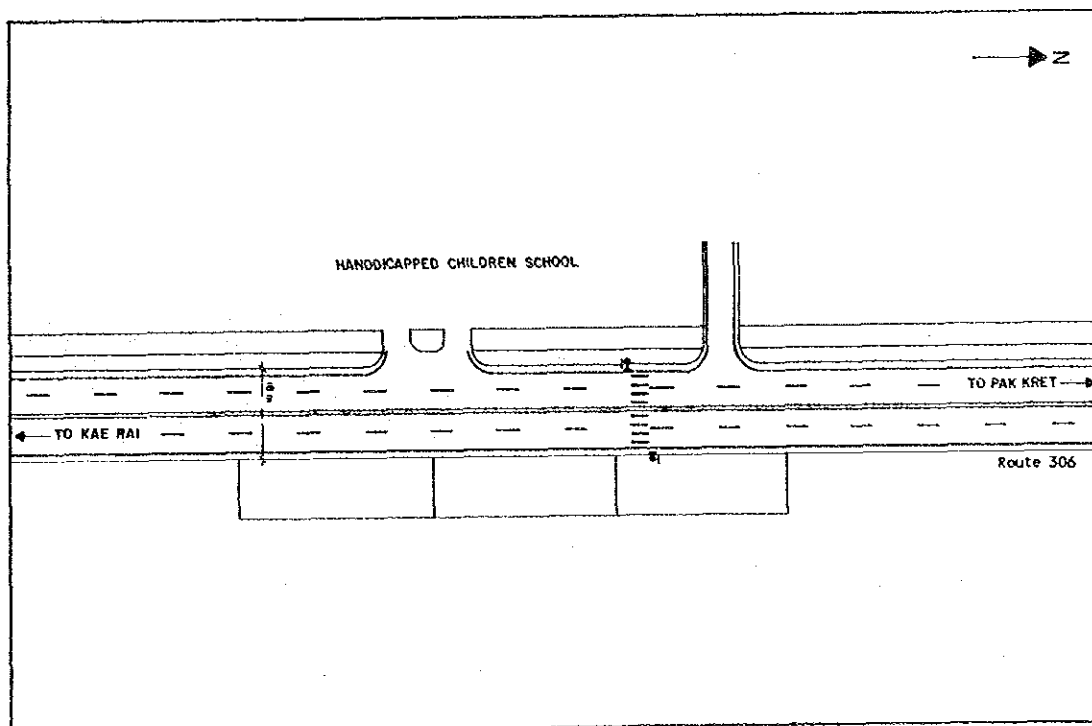


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|--------------------------|---------------------|-------------------------------|--------------------------|---------------------------|---|-----------------|
| LOCATION NO. | 42 | | LOCATION NAME | | Ha Yaek Pakket | | |
| ROUTE NO. | 306 | CONTROL SECTION NO. | 103 | K.P. OF PROBLEM LOCATION | K.P. 13.000 - K.P. 14.000 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 6,000 - K.P. 26.674 | | DISTRICT NAME | | | PATHUMTHANI | DISTRICT CODE |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) | | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) | | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 339 |
| | MAJOR ROAD 49,189 | | | MAJOR ROAD 31.3 | | | |
| | (PEAK HOUR) | | | (PEAK HOUR) | | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | 0.0 |
| | MAJOR ROAD 3,356 | | | MAJOR ROAD 32.8 | | | |
| NO. OF ACCIDENTS(CASES) | 0 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | WHOLE CONTROL SECTION | 44.6 |
| | | | | (INJURIES) | 0 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

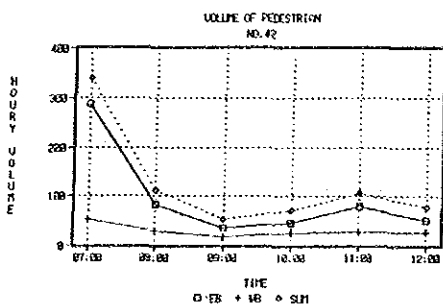
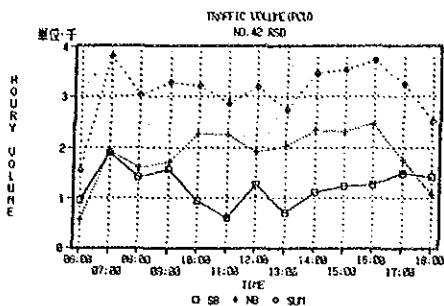
This is the intersection of R306 and a feeder road to a school. The R306 section is a four-lane section with a median. Pedestrian push-button signals have been installed.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | 0 |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | REMARKS | | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|---------------------------------------|--|---------|--|--|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL-ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUAL-TIES/100 MIL. VEH. KM.) | INJURY (CASUAL-TIES/100 MIL. VEH. KM.) | | DEATH AND INJURY (CASUAL-TIES/100 MIL. VEH. KM.) | ACCIDENT RATE OF CONTROL SECTION (CASUAL-TIES/100 MIL. VEH. KM.) |
| 42 | 306 | 103 | 13+000 - 14+000 | 1.000 | 24,370 | 24,370 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 64.6 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|-------------------|-----------|--------|-----|---|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OR CONTROL | HIT FIXED OBJECTS | HIT TRAIN | OTHERS | | | |
| 42 | 306 | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | SUM | REMARKS | | | | | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|---|---|---|---|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | INPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | | | | | |
| 42 | 306 | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

COMMENTS ON TRAFFIC CONDITION

R306 is a primary highway with a high traffic volume (RHV is 31%).

COMMENTS ON ACCIDENT CONDITION

No accidents have been recorded.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

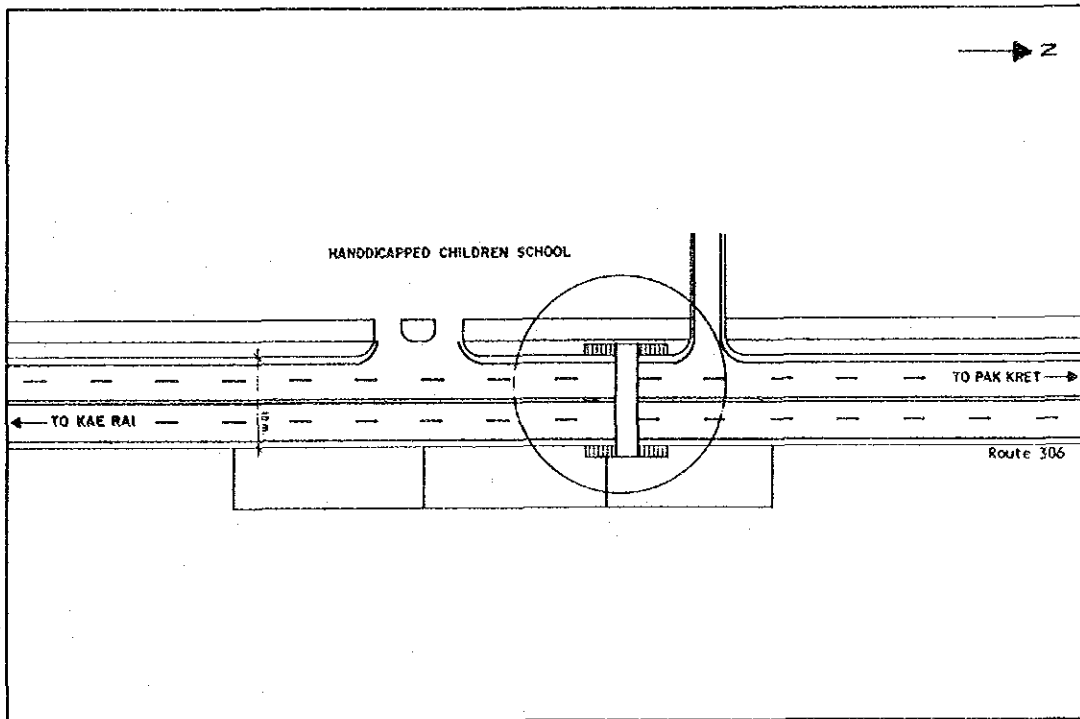
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

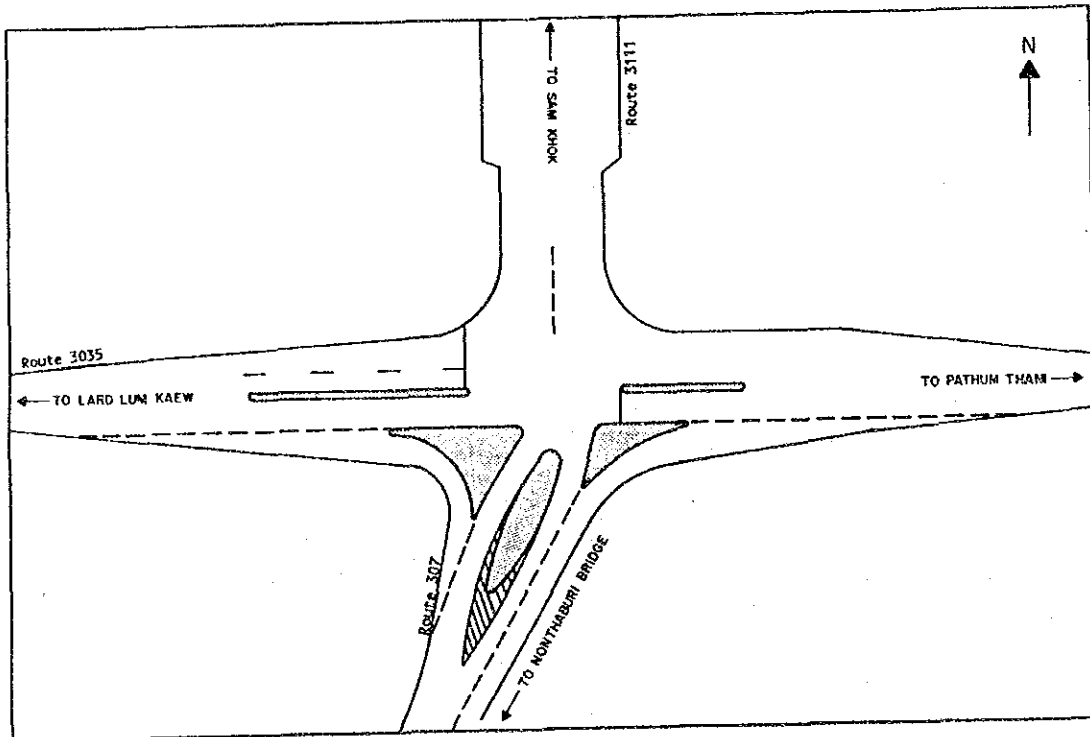


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | | |
|------------------------------------|------------------------------|---------------------|-------------------------------|--------------------------|------------------------------|------------------------------|---|---------------------|
| LOCATION NO. | 43 | | LOCATION NAME | | Pathum Wilai School | | | |
| ROUTE NO. | 307/3035 3111 | CONTROL SECTION NO. | 100/100 100 | K.P. OF PROBLEM LOCATION | 10.000 K.P. 0.500 - 0.500 | 11.500 K.P. 2.000 - 0.500 | ROAD CONDITION | Inter-section |
| K.P. OF CONTROL SECT. | K.P. 0.000 0.000 0.000 | - | K.P. 10.863 3.196 5.869 | | | | DISTRICT CODE | 416 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | | PATHUMTHANI | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) | | PERCENT OF HEAVY VEHICLES (%) | | (WHOLE DAY) | | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 110.2/57.3 /59.0 |
| | MAJOR ROAD | 32,046 | | | MAJOR ROAD | 34.1 | | |
| | MINOR ROAD | 10,034/15,000 | | MINOR ROAD | 33.4/38.6 | | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | 20.2/25.1 /236.2 |
| | (PEAK HOUR) | | | (PEAK HOUR) | | | | |
| | MAJOR ROAD | 1,586 | | MAJOR ROAD | 31.0 | | | |
| | MINOR ROAD | 875/1,211 | | MINOR ROAD | 40.0/45.1 | | | |
| NO OF ACCIDENTS(CASES) | 9/2/2 | | CASUALTIES (PERSONS) | | (FATALITIES) | 8/0/1 | WHOLE CONTROL SECTION | |
| | | | | | (INJURIES) | 5/2/0 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is a stop-controlled intersection between two two-lane roads in a built-up area in Pathum Thani. Both roads have left-turn lanes, except R3111. R3111, which is connected to R307 at this intersection, has a bridge section on the approach to the intersection.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | 0 |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | 0 |

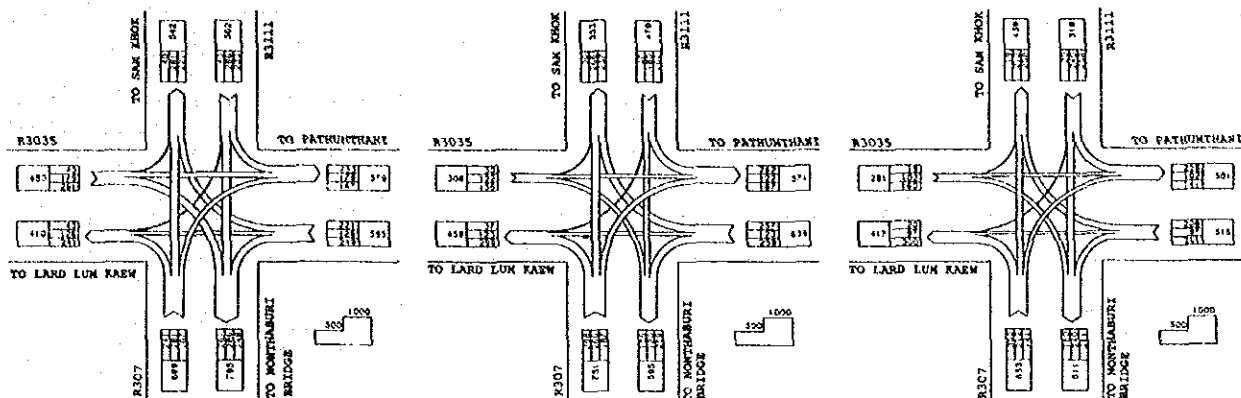
TRAFFIC DATA ANALYSIS

Traffic Data Analysis

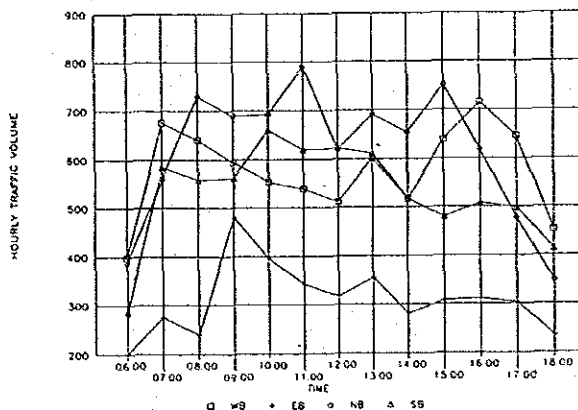
Morning Peak

Evening Peak

Off Peak



VARIATION IN TRAFFIC VOLUME



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | ACCIDENT RATE OF CONTROL SECTION (CASES/100 MIL. VER. KM.) | REMARKS | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|---|--------------------------------------|---------------------------------------|--|---------|---|
| | | | | | ADT (Veh./DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ALL ACCIDENTS (CASES/100 MIL. VER. KM.) | DEATH (CASUALTIES/100 MIL. VER. KM.) | INJURY (CASUALTIES/100 MIL. VER. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VER. KM.) |
| 43 | 307 | 100 | 12+000 - 14+500 | 1.500 | 21,547 | 32,321 | 9 | 2 | 3 | 13 | 6.0 | 76.3 | 67.8 | 42.4 | 110.2 | 20.0 |
| 43 | 3035 | 100 | 0+500 - 2+000 | 1.500 | 6,377 | 9,566 | 2 | 0 | 2 | 2 | 1.3 | 57.5 | 0.0 | 57.3 | 57.3 | 25.1 |
| 43 | 3111 | 100 | 0+200 - 0+500 | 0.500 | 9,295 | 4,643 | 2 | 1 | 0 | 1 | 4.0 | 118.0 | 59.0 | 0.0 | 59.0 | 250.2 |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | OPPOSED VEHICLE COLLISION | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | DIVERS | | |
| 43 | 307 | 100 | 2 | 1 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 43 | 3035 | 100 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 43 | 3111 | 100 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | SUM | REMARKS |
|-----|-----------|---------------------|--|------------------|------------------|-----------------|----------------|--------|--------|-----|---------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | |
| 43 | 307 | 100 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | |
| 43 | 3035 | 100 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | |
| 43 | 3111 | 100 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | |

COMMENTS ON TRAFFIC CONDITION

R307 carries slightly more traffic than the other routes. Left- and right-turns occupy a higher percentage of the traffic volume on each approach without there being a left-turn toward R3111 and right-turn from R3111. There is little hourly variation of traffic volume entering the intersection. A high heavy-vehicle composition is observed especially in the south-west and north-south directions.

COMMENTS ON ACCIDENT CONDITION

Rear-end collisions and collisions with opposed vehicles occurred most frequently. Accidents involving motorcycles were also common.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Traffic volume exceeds the capacity of the stop-controlled intersection. There is no clear prioritization of traffic flow because of the similarity in traffic volumes and in the configurations of the roads.

MEASURES

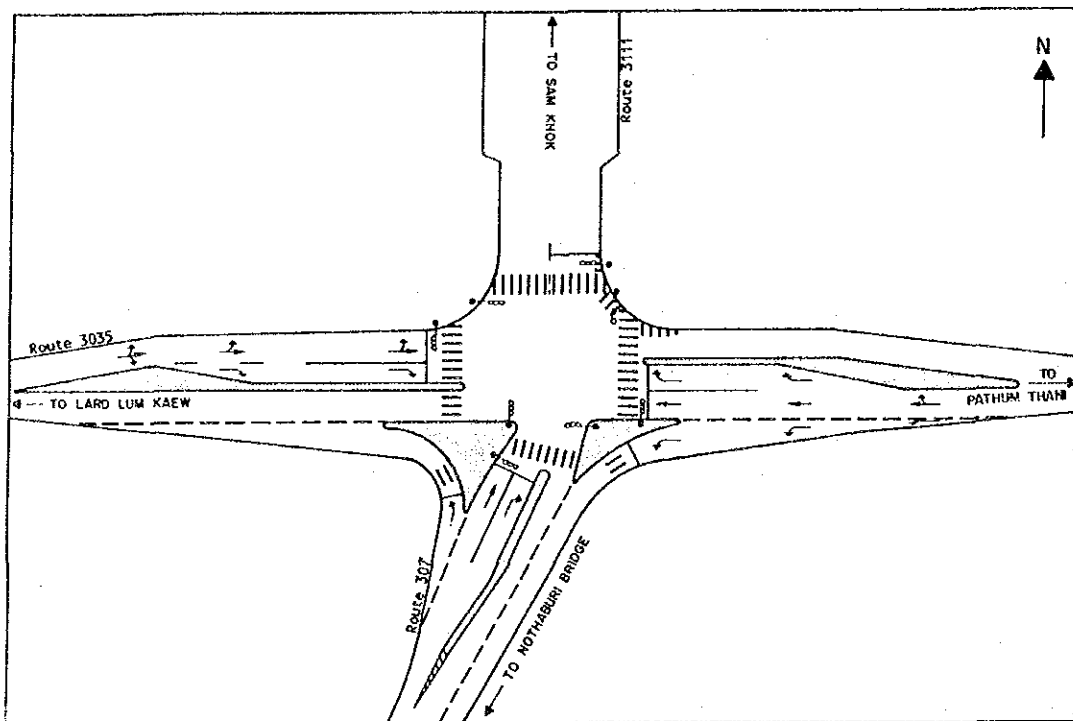
Signalization of the intersection and the provision of right-turn lanes, except on R3111, are suggested.

EVALUATION

Signalization of intersection: Satisfies criteria for improvement.

Provision of right-turn lanes, except on R3111: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN



| | | | |
|--------------|----|-----------------|-------|
| 1Ø | | 2Ø | |
| | | | |
| 65.6 | | 34.4 | |
| Cycle Length | 90 | Saturate Degree | 0.486 |

| | | | |
|--------------|----|-----------------|-------|
| 1Ø | | 2Ø | |
| | | | |
| 61.3 | | 38.7 | |
| Cycle Length | 80 | Saturate Degree | 0.439 |

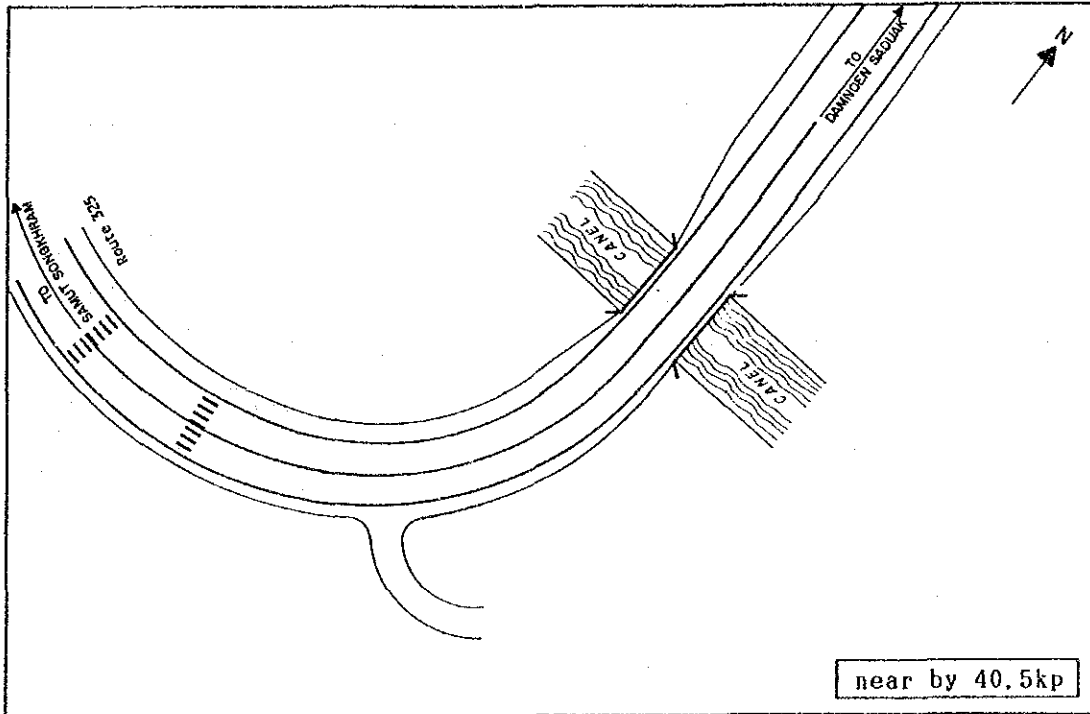
| | | | |
|--------------|----|-----------------|-------|
| 1Ø | | 2Ø | |
| | | | |
| 66.7 | | 33.3 | |
| Cycle Length | 90 | Saturate Degree | 0.427 |

DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|---------------------------|---------------------|-------------------------------|--------------------------|---------------------------|---|-----------------|
| LOCATION NO. | 44 | | LOCATION NAME | | Bang Phae-Damnoen Saduak | | |
| ROUTE NO. | 325 | CONTROL SECTION NO. | 200 | K.P. OF PROBLEM LOCATION | K.P. 40.500 - K.P. 42.725 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 20.124 - K.P. 42.725 | | | | | DISTRICT CODE | 335 |
| DIVISION NAME | PRACHUAPKHIRIKHAN | | DISTRICT NAME | RATCHABURI | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 5,304 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 25.0 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | |
| | (PEAK HOUR) MAJOR ROAD | 442 | | (PEAK HOUR) MAJOR ROAD | 25.6 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | 119.4 |
| NO. OF ACCIDENTS(CASES) | 7 | | CASUALTIES (PERSONS) | (FATALITIES) | 2 | WHOLE CONTROL SECTION | 41.1 |
| | | | | (INJURIES) | 6 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

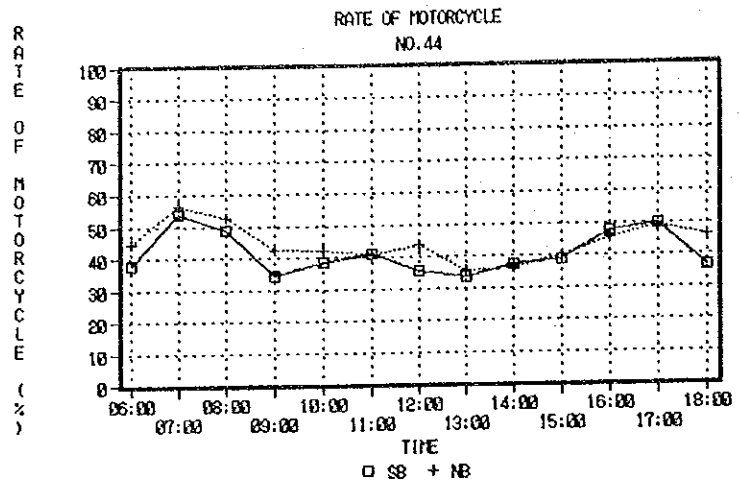
R325 is a two-lane road with a 2.5 m width of soft shoulders. A sharp curvature section is included in the Study Section. The shoulder is reduced to 0.5 m on the bridge and the carriageway width has been narrowed by soil from the shoulder.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|--|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | |
| GUARD FENCE | |
| CHANNELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | REMARKS | | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---------|---|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEN. KM.) | DEATH (CASUALTIES/100 MIL. VEN. KM.) | INJURY (CASUALTIES/100 MIL. VEN. KM.) | | DEATH AND INJURY (CASUALTIES/100 MIL. VEN. KM.) | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEN. KM.) |
| 44 | 325 | 200 | 40+500 - 42+725 | 2.225 | 8,251 | 18,358 | 7 | 2 | 6 | 8 | 3.1 | 104.5 | 29.8 | 69.5 | 119.4 | 41.1 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|-----|--------|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | | OTHERS | |
| 44 | 325 | 200 | 1 | 0 | 0 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | SUM | REMARKS | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|-----|---------|--------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | | | OTHERS |
| 44 | 325 | 200 | 2 | 2 | 2 | 0 | 0 | 0 | 1 | 7 | |

COMMENTS ON TRAFFIC CONDITION

Traffic volume is not heavy in any one direction but flows evenly. The percentage of motorcycles is very high and it makes up more than 50% of the traffic volume during the peak-hours for both directions.

COMMENTS ON ACCIDENT CONDITION

Almost all accidents involved motorcycles which resulted in fatalities. The types of accidents causing fatalities are: collisions with opposed vehicles and rear-end collisions.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The mixture of motorcycle and ordinary vehicular traffic is dangerous and interrupts the smooth flow of the traffic. All motorcycles run on the carriageway and avoid the soft shoulder and they also operate at lower speeds than ordinary vehicles.

MEASURES

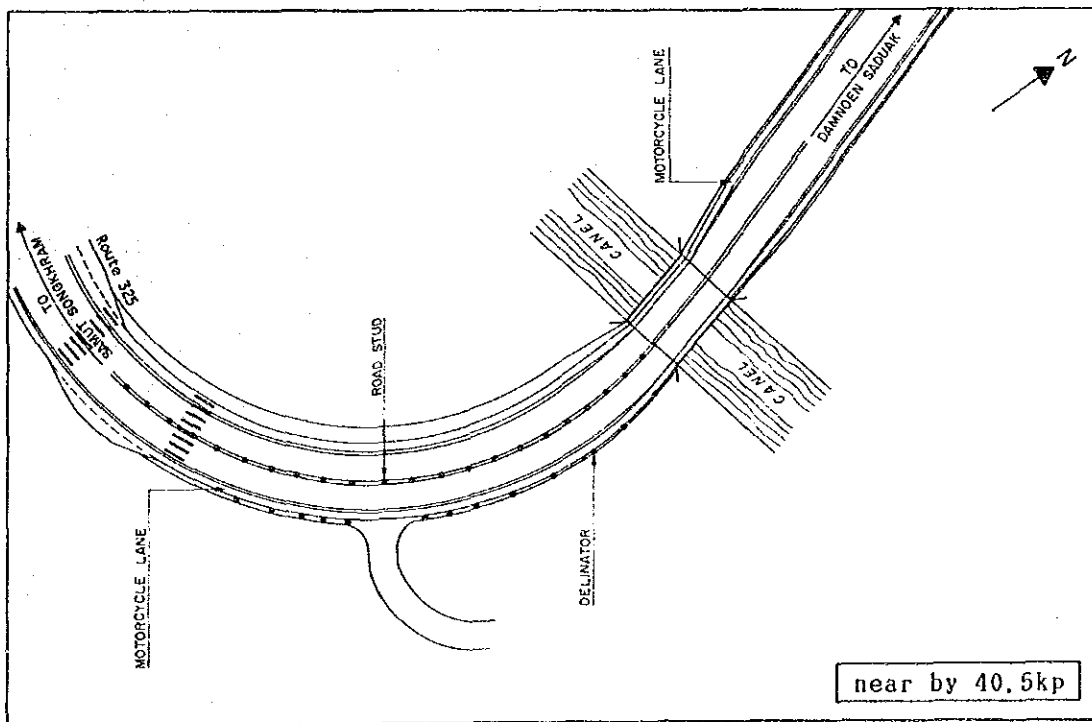
The installation of a motorcycle lane and the improvement of the curvature section are suggested.

EVALUATION

Installation of motorcycle lane: Satisfies criteria for improvement.

Improvement of curvature section: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

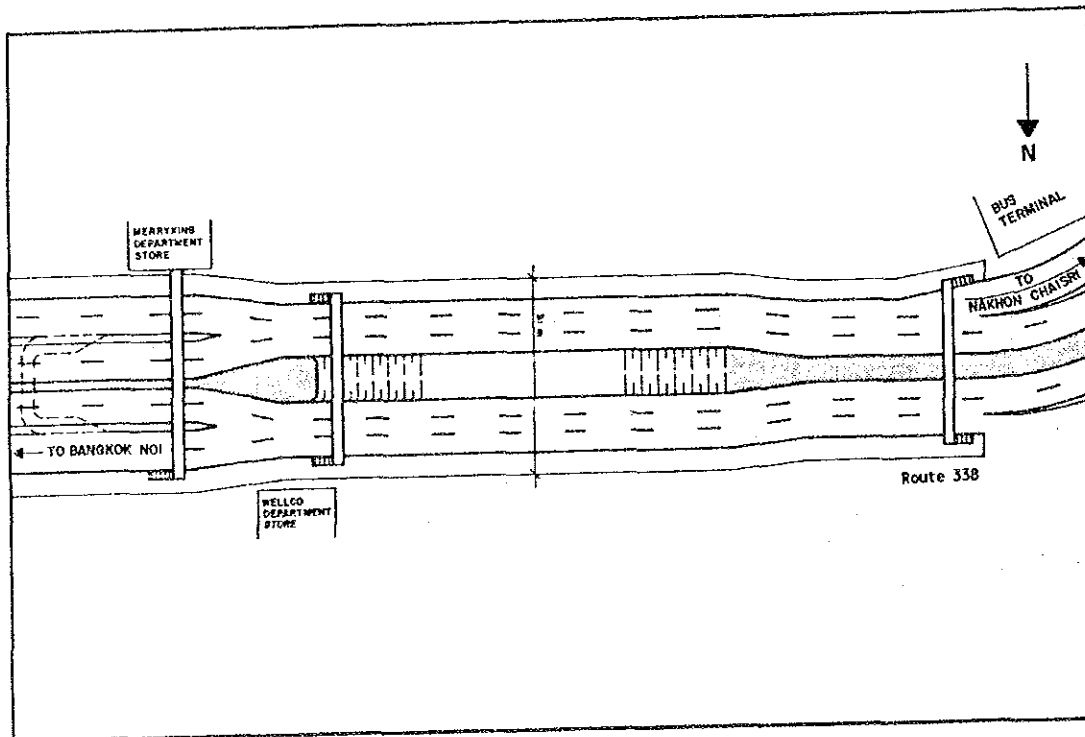


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | | | |
|-----------------------------------|-------------------------|---------------------|-------------------------------|--------------------------|-------------------------|----------------|--|-----------------------|------|
| LOCATION NO. | 45 | | LOCATION NAME | | Pra Pin Village | | | | |
| ROUTE NO. | 338 | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 2,000 - K.P. 3,000 | ROAD CONDITION | Roadway Section | | |
| K.P. OF CONTROL SECT. | K.P. 1,144 - K.P. 3,283 | | DISTRICT NAME | | THONBURI | | DISTRICT CODE | 415 | |
| DIVISION NAME | BANGKOK | | PERCENT OF HEAVY VEHICLES (%) | | (WHOLE DAY) MAJOR ROAD | 35.3 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | - | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U) | (WHOLE DAY) MAJOR ROAD | | MINOR ROAD | | (PEAK HOUR) MAJOR ROAD | 42.2 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM) | 63.5 | |
| | (PEAK HOUR) MAJOR ROAD | | MINOR ROAD | | MINOR ROAD | | | | |
| NO. OF ACCIDENTS(CASES) | 16 | | CASUALTIES (PERSONS) | (FATALITIES) | 1 | (INJURIES) | 6 | WHOLE CONTROL SECTION | 38.1 |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is an uninterrupted flow section of R338, with department stores, bus terminals and other service facilities on both sides. Pedestrians cannot cross the street at present because the median is fenced.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | 0 |
| STREET LIGHTING | 0 |
| GUARD FENCE | 0 |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUAL-TIES/100 MIL.VEH. KM.) | REMARKS | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUAL-TIES/100 MIL.VEH. KM.) | INJURY (CASUAL-TIES/100 MIL.VEH. KM.) | | | DEATH AND INJURY (CASUAL-TIES/100 MIL.VEH. KM.) |
| 45 | 338 | 100 | 2+000 - 3+000 | 1.000 | 30,225 | 30,225 | 16 | 1 | 6 | 7 | 16.0 | 145.0 | 9.1 | 54.4 | 63.5 | 38.1 | * |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|---------------------|--------------------|----------------------|-----------------|------------------|-----------------|------------------|-----------|--------|-----|
| | | | HIT PEDES-TRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLI-SION | HEAD ON COLLI-SION | HIT AT INTER-SECTION | SIDE COLLI-SION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | |
| 45 | 338 | 100 | 1 | 1 | 4 | 0 | 6 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 16 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | SUM | REMARKS |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|---|-----|---------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 45 | 338 | 100 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 16 | |

COMMENTS ON TRAFFIC CONDITION

R338 is a primary highway which runs from east to west. It has a high traffic volume and a RHV of 35%.

COMMENTS ON ACCIDENT CONDITION

Speeding is the cause of many accidents (11 cases, 69% of all accidents). However, none of the accidents involved pedestrians, since they are prevented from crossing the road.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

There is no pedestrian crossing facility between 1.1 kp and 3.3 kp on Route 338.

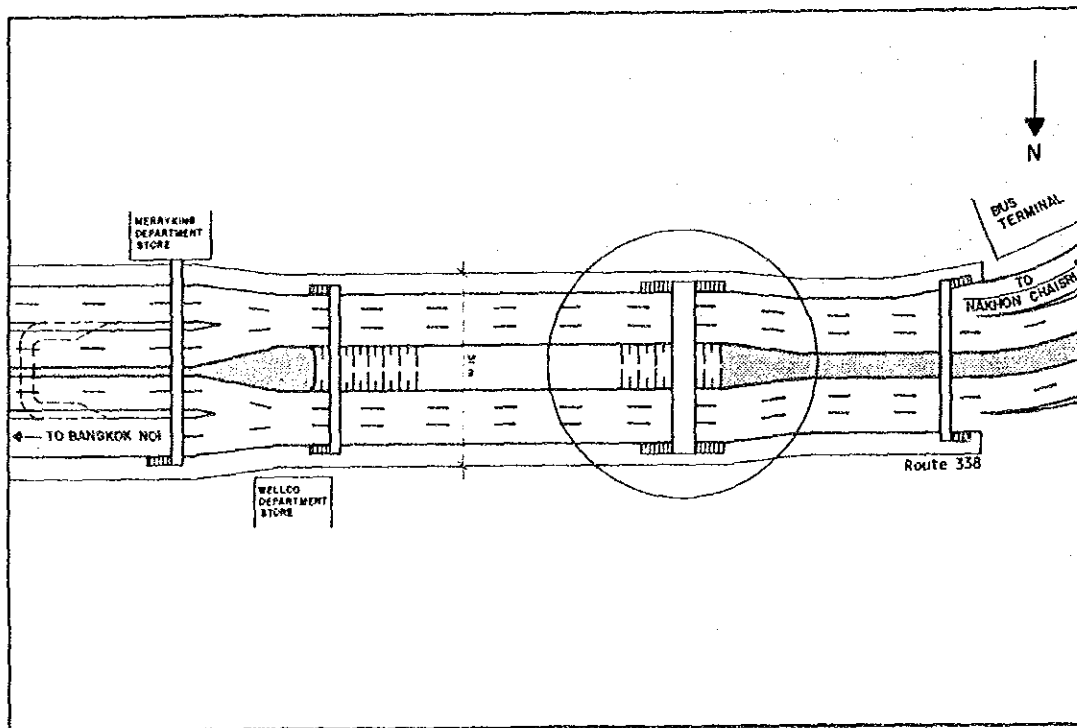
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Pedestrian crossing is prevented by cable fence at median, so nobody can cross the road. The road-side of this section is like an urban street, so facilities for pedestrian crossing should be installed. In urban areas, pedestrian overpasses are installed at intervals of about 500 m.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

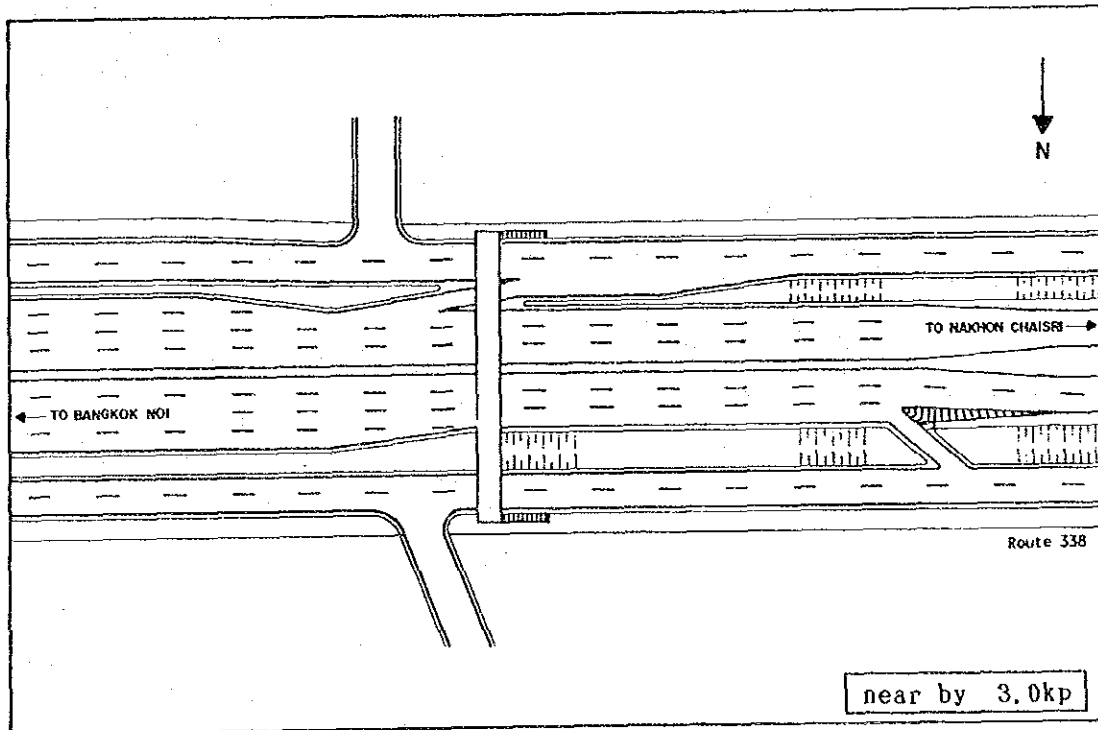


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | | | |
|------------------------------------|--------------------------|---------------------|---------------|-------------------------------|-------------------------|------|----------------|--|-------|
| LOCATION NO. | 46 | | LOCATION NAME | | Suan Pak | | | | |
| ROUTE NO. | 338 | CONTROL SECTION NO. | 200 | K.P. OF PROBLEM LOCATION | K.P. 2.500 - K.P. 6.000 | | ROAD CONDITION | Roadway Section | |
| K.P. OF CONTROL SECT. | K.P. 2.952 - K.P. 33.984 | | | | | | | | |
| DIVISION NAME | BANGKOK | | | DISTRICT NAME | THONBURI | | DISTRICT CODE | 415 | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 5,936 | | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 35.3 | | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | |
| | (PEAK HOUR) MAJOR ROAD | 4,115 | | | (PEAK HOUR) MAJOR ROAD | 42.2 | | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM) | 108.8 |
| NO. OF ACCIDENTS(CASES) | 81 | | | CASUALTIES (PERSONS) | (FATALITIES) | 2 | | WHOLE CONTROL SECTION | 48.5 |
| | | | | | (INJURIES) | 40 | | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is an uninterrupted flow section of R338. It has a two-lane frontage road divided by a separator on both sides. Ramps connect the main carriageway and the frontage roads.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | 0 |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Accident Data Analysis

Number of Accident and Casualties

| STLOY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | ACCIDENT RATE OF CONTROL SECTION (CASU-TIES/100 MIL.VEH. KM.) | REMARKS | | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|------------------------------|--|--------------------------------------|---|---------|---------------------------------------|---|
| | | | | | ADT (PCI/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/ KM) | ALL ACCIDENTS (CASES/ 100 MIL. VEH. KM.) | DEATH (CASUAL-TIES/100 MIL.VEH. KM.) | | | INJURY (CASUAL-TIES/100 MIL.VEH. KM.) | DEATH AND INJURY (CASUAL-TIES/100 MIL.VEH. KM.) |
| 46 | 338 | 200 | 2+500 - 6+000 | 3.500 | 30,225 | 105,788 | 81 | 2 | 40 | 42 | 23.1 | 209.8 | 5.2 | 103.6 | 108.8 | 48.5 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | SUM | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|---------------------|--------------------|----------------------|-----------------|------------------|-----------------|------------------|-----------|-----|--------|
| | | | HIT PEDES-TRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLI-SION | HEAD ON COLLI-SION | HIT AT INTER-SECTION | SIDE COLLI-SION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | | OTHERS |
| 46 | 338 | 200 | 9 | 0 | 16 | 0 | 27 | 0 | 4 | 2 | 4 | 2 | 7 | 0 | 10 | 81 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | SUM | REMARKS |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|--------------|--------|--------|----|-----|---------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRAWN DRIVER | SLEEPY | OTHERS | | | |
| 46 | 338 | 200 | 59 | 4 | 3 | 2 | 0 | 0 | 13 | 81 | | |

COMMENTS ON TRAFFIC CONDITION

R338 is a primary highway which runs from east to west, and merges with R4 in the west. It has a high traffic volume and a RHV of 35%.

COMMENTS ON ACCIDENT CONDITION

The accident frequency is high (81 cases). Speeding is the cause of most of the accidents. Rear-end collisions are the most frequent (27 cases, 33% of all accident types), followed by accidents caused by overtaking cars (16 cases, 20% of the total types).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

There is much conflict in the merging section between the ramps and the frontage road.

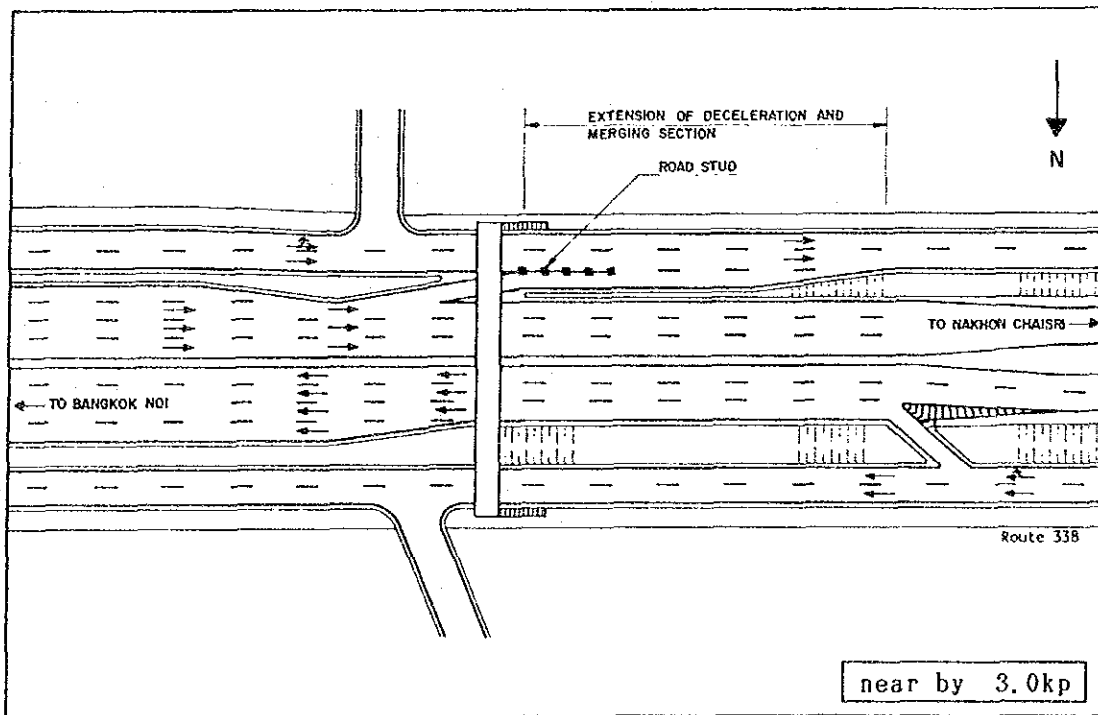
MEASURES

Extension of the merging section is suggested.

EVALUATION

Extending merging section: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

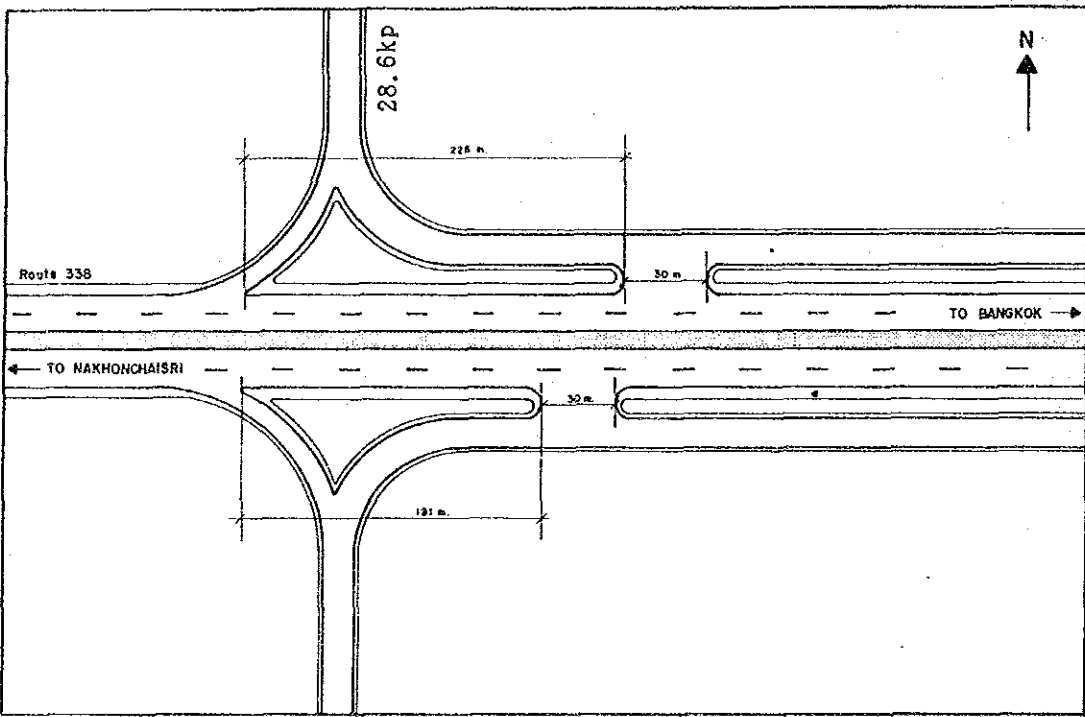


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|-----------------------------------|---------------------|-------------------------------|-----------------------------------|---------------------------|---|-----------------|
| LOCATION NO. | 47 | | LOCATION NAME | | Buddha Monthon Sai 7 | | |
| ROUTE NO. | 338 | CONTROL SECTION NO. | 200 | K.P. OF PROBLEM LOCATION | K.P. 28.000 — K.P. 29.000 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 2.952 — K.P. 33.984 | | | | | DISTRICT CODE | 415 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | | THONBURI | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 56,936 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 35.3 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | |
| | MINOR ROAD (PEAK HOUR) MAJOR ROAD | 4,115 | | MINOR ROAD (PEAK HOUR) MAJOR ROAD | 42.2 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | 45.3 |
| NO. OF ACCIDENTS(CASES) | 7 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | WHOLE CONTROL SECTION | 48.5 |
| | | | | (INJURIES) | 5 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is an interchange of R338. The R338 section is a straight four-lane section. R338 has two-way two-lane frontage roads on both sides, the minor road is connected through these frontage roads.

TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | 0 |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEN. KM.) | REMARKS | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEN. KM.) | DEATH (CASUALTIES/100 MIL. VEN. KM.) | INJURY (CASUALTIES/100 MIL. VEN. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEN. KM.) |
| 47 | 338 | 200 | 28+000 - 29+000 | 1.000 | 30,225 | 30,225 | 7 | 0 | 5 | 5 | 7.0 | 63.5 | 0.0 | 45.3 | 45.3 | 48.5 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | | | |
| 47 | 338 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | REMARKS | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | SUM | | |
| 47 | 338 | 200 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | |

COMMENTS ON TRAFFIC CONDITION

R338 is a primary highway which runs from east to west. It has a high traffic volume and a RHV of 35%, and it merges with R4 in the west. The interchange is in a suburban areas and it meets high-level design standards, and consequently cars are able to travel at speed.

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (7 cases). Most accidents are caused by speeding (4 cases). Vehicles hitting fixed objects is the next most common all types of accidents.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

There is much conflict at the entrances and exits of the frontage road.

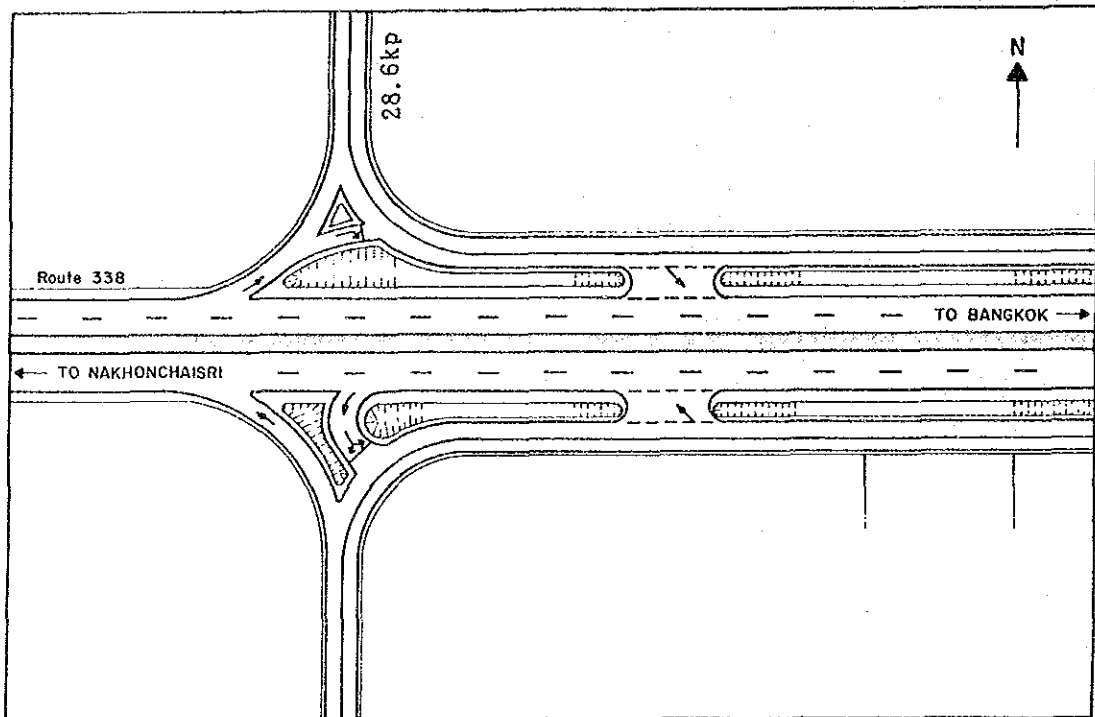
MEASURES

Channelization is suggested.

EVALUATION

Channelization: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

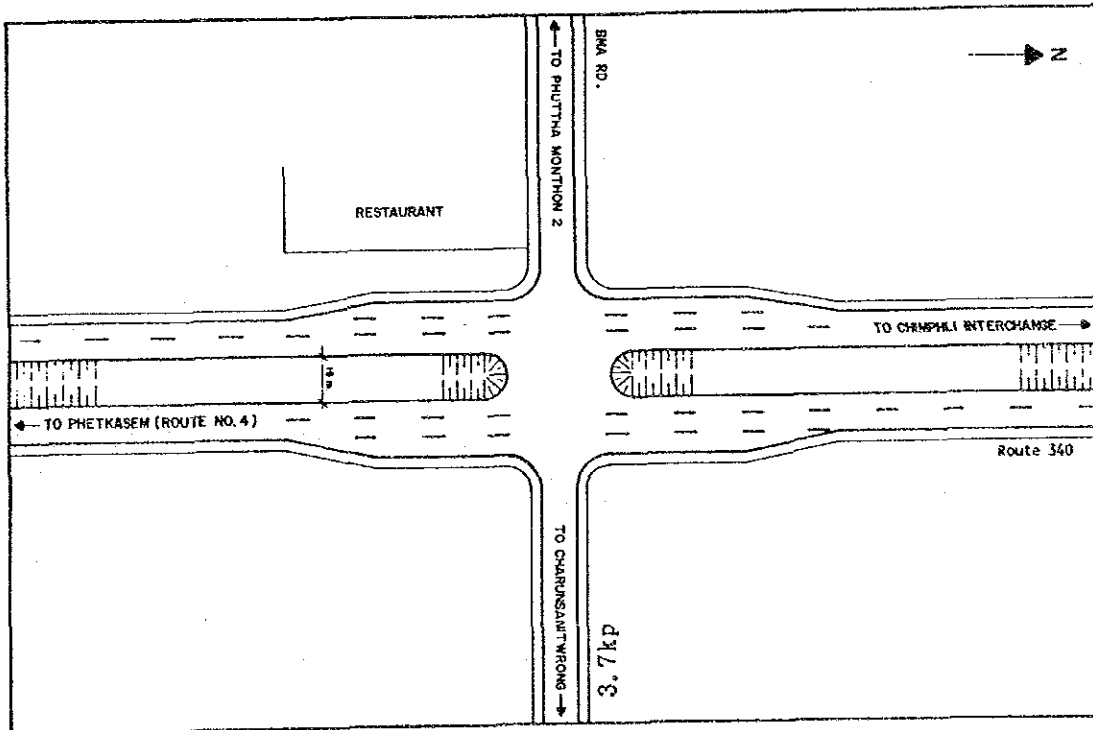


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|----------------------------|---------------------|-------------------------------|--------------------------|--------------------------------|--|---------------|
| LOCATION NO. | 48 | | LOCATION NAME | | Bang Waek | | |
| ROUTE NO. | 340/BMA | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 3.000 -- K.P. 4.000 | ROAD CONDITION | Inter-section |
| K.P. OF CONTROL SECT. | K.P. 31.672 -- K.P. 23.941 | | | | | DISTRICT CODE | |
| DIVISION NAME | BANGKOK | | | DISTRICT NAME | THONBURI | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) | | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) | | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 0.0 |
| | MAJOR ROAD | 29,950 | | MAJOR ROAD | 24.8 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM) | |
| | (PEAK HOUR) | | | (PEAK HOUR) | | WHOLE CONTROL SECTION | 2.1 |
| | MAJOR ROAD | 2,406 | MAJOR ROAD | 30.1 | | | |
| NO. OF ACCIDENTS(CASES) | 0 | | | CASUALTIES (PERSONS) | (FATALITIES) 0 (INJURIES) 0 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is an at-grade intersection in the suburbs. R340 is a road made up of part of the Outer Ring Road, and only its western section is presently in service. It is designed to high design standards. All arterial highway intersections are grade separated, with the exception of this one.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

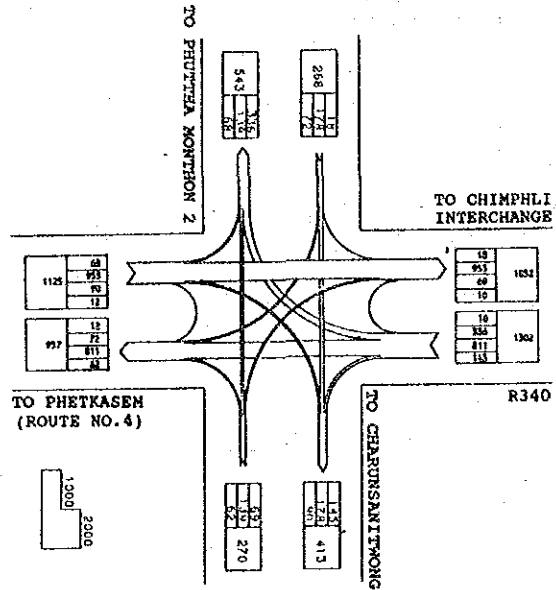
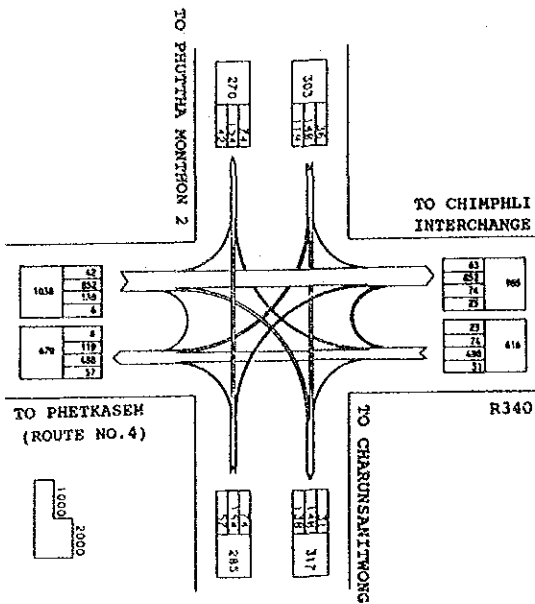
| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANNELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis

Morning Peak

Evening Peak



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | |
| 48 | 340 | 100 | 3+000 - 4+000 | 1.000 | 61,408 | 41,408 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 * |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | SUM | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|-----|--------|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | | OTHERS |
| 48 | 340 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | SUM | REMARKS | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|---|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 48 | 340 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

COMMENTS ON TRAFFIC CONDITION

Since R340 is partly in service, its traffic volume is smaller than those of other arterial highways (2400 PCU/peak hour). The BMA road has a peak-hour traffic volume of approximately 600 cars, and also has a considerably large amount of traffic turning right. Traffic speed is high on R340.

COMMENTS ON ACCIDENT CONDITION

No traffic accident statistics were available.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Traffic volume at the intersection, especially traffic turning right, is too large to regulate by stop-control measures. Right-turning traffic is not channelized on the highway or on the crossroad. Consequently, all traffic, excluding through-traffic and left-turning vehicles on R340 and left-turning vehicles from the crossroad, is accommodated in the center of the intersection. This causes confusion and hinders the smooth flow of turning traffic and through-traffic. The intersection traffic in other sections of R340 is regulated by grade separation. Consequently, drivers tend to underestimate the danger involved in crossing this intersection.

MEASURES

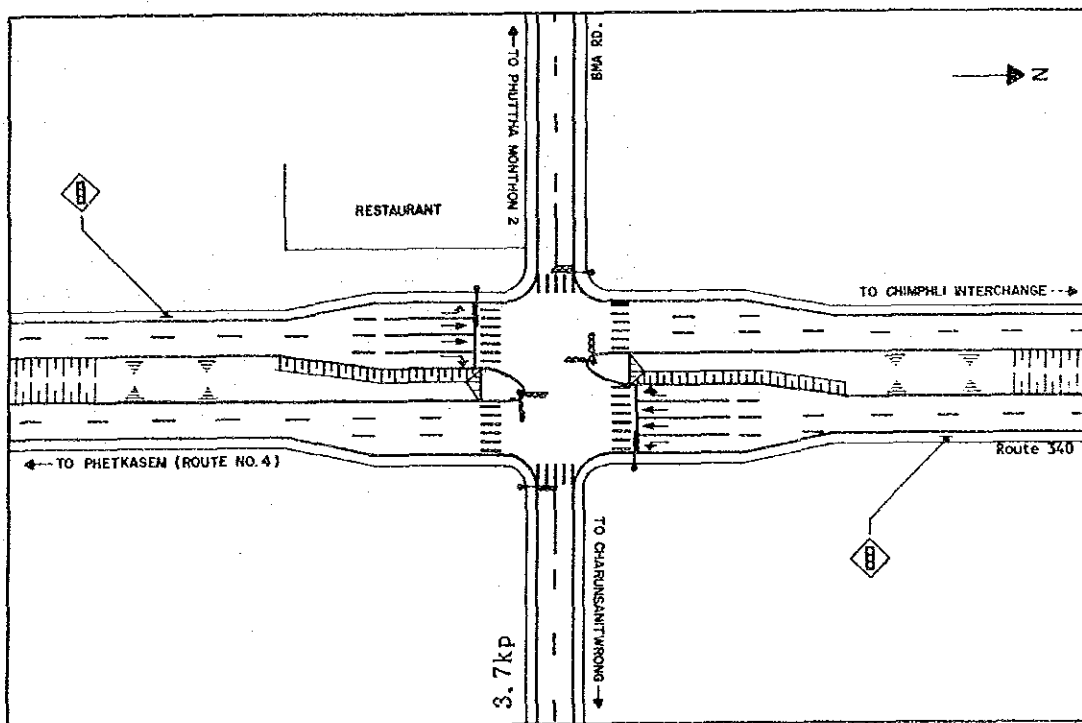
The installation of pre-timed signals and advance warning signs is suggested for the short-term and the creation of a grade separation for the long-term.

EVALUATION

Creation of grade separation for the long-term: Satisfies criteria for improvement. The speed on this road is very high and there is no signal on this road/section.

Installation of pre-timed signal, and installation of forewarning guide signs for short-term: Satisfies criteria for improvement. The speed on this road is very high and there is no signal on this road/section.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN



Morning Peak

| | | | |
|--------------|----|-----------------|-------|
| 1Ø | | 2Ø | |
| ↑ ↓ | | ↑ ↓ | |
| 50.0 | | 50.0 | |
| Cycle Length | 44 | Saturate Degree | 0.397 |

Evening Peak

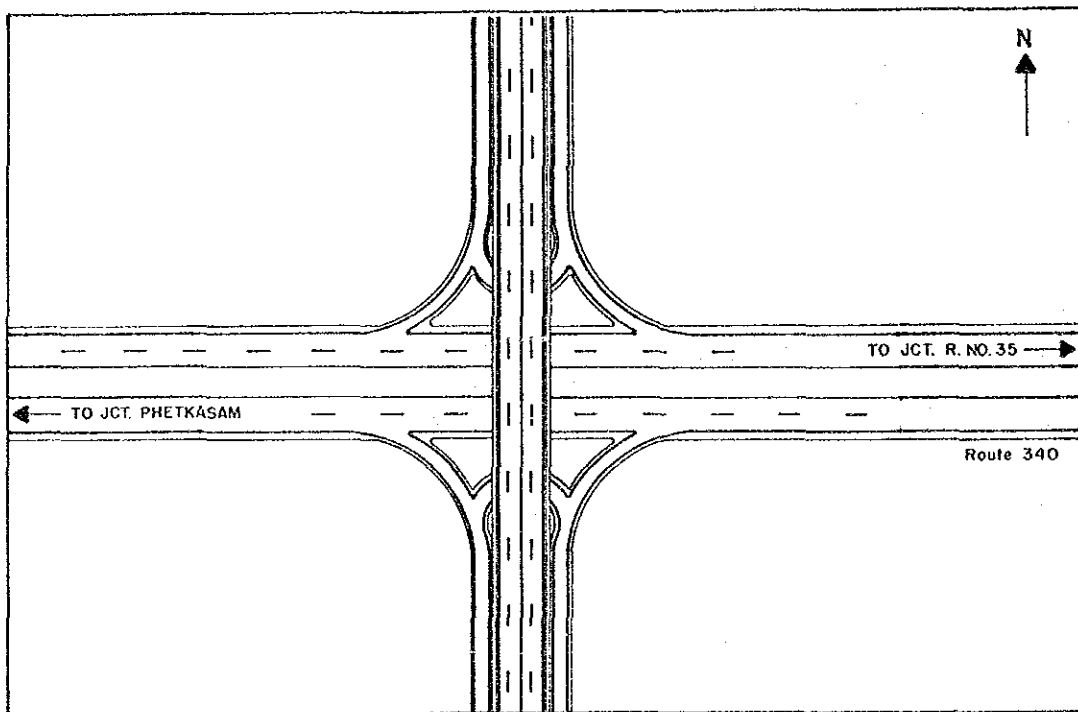
| | | | | | |
|--------------|----|-----------------|-------|-------|--|
| 1Ø | | 2Ø | | 3Ø | |
| ↑ ↓ | | ↑ ↓ | | ↑ ↓ | |
| 36.9 | | 29.2 | | 33.9 | |
| Cycle Length | 65 | Saturate Degree | 0.603 | | |

DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | | |
|-----------------------------------|-------------------|--------------------|-------------------------------|--------------------------|-------------|--|----------------|-----------------|
| LOCATION NO. | 49 | | LOCATION NAME | | Eakka Chai | | | |
| ROUTE NO | 340/3242 | CONTROL SECTION NO | 100/100 | K.P. OF PROBLEM LOCATION | K.P. 29.000 | K.P. 30.000 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT | K.P. 31.672 | | K.P. 23.941 | | K.P. 18.500 | K.P. 20.000 | | |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | THONBURI | | DISTRICT CODE | 415 | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U) | (WHOLE DAY) | | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) | | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | | |
| | MAJOR ROAD 29,950 | | | MAJOR ROAD 24.8 | | | | |
| | MINOR ROAD 22,097 | | | MINOR ROAD 22.7 | | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM) | | |
| | (PEAK HOUR) | | | (PEAK HOUR) | | | | |
| | MAJOR ROAD 2,406 | | | MAJOR ROAD 30.1 | | | | 0.0/254.4 |
| | MINOR ROAD 1,436 | | | MINOR ROAD 21.7 | | | | |
| NO OF ACCIDENTS(CASES) | 0/25 | | CASUALTIES (PERSONS) | (FATALITIES) 0/1 | | WHOLE CONTROL SECTION | 2.1/64.1 | |
| | | | | (INJURIES) 0/17 | | | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is the interchange of R340 and R3242. R340 is a straight four-lane section. R3242 is a straight two-way two-lane section which overpasses R340 and is connected to it by diamond-shaped ramps. Right-turn vehicles have to make a detour through the U-turn way under R340.

TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-Y.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | REMARKS | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) |
| 49 | 340 | 100 | 29+000 - 30+000 | 1.000 | 41,408 | 41,408 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | * |
| 49 | 3242 | 100 | 18+500 - 20+000 | 1.500 | 12,923 | 19,385 | 25 | 1 | 17 | 18 | 16.7 | 353.3 | 14.1 | 240.3 | 64.1 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|----|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | | |
| 49 | 340 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 49 | 324 | 100 | 1 | 1 | 4 | 1 | 5 | 0 | 10 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 25 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | REMARKS | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|----|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | SUN | | |
| 49 | 340 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 49 | 3242 | 100 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 25 |

COMMENTS ON TRAFFIC CONDITION

Traffic volume is not very large at present (ADT is 24,000 vehicles, RHV is 25%), but it is expected to increase after the completion of the entire ring road. The roads satisfy high-level design standards and allow cars to travel at speed. R3242 runs south-east from Bangkok and serves it, to a certain extent, as a bypass. Although it is a two-lane road, it has a large traffic volume, partly as a result of the ongoing widening work on R35.

COMMENTS ON ACCIDENT CONDITION

Speeding is the main cause of accidents on R3242 (21 cases). Collisions at the intersection were the most common type of accident (10 cases were recorded).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Drivers make illegal U-turns at the nose of the ramp on R3242.

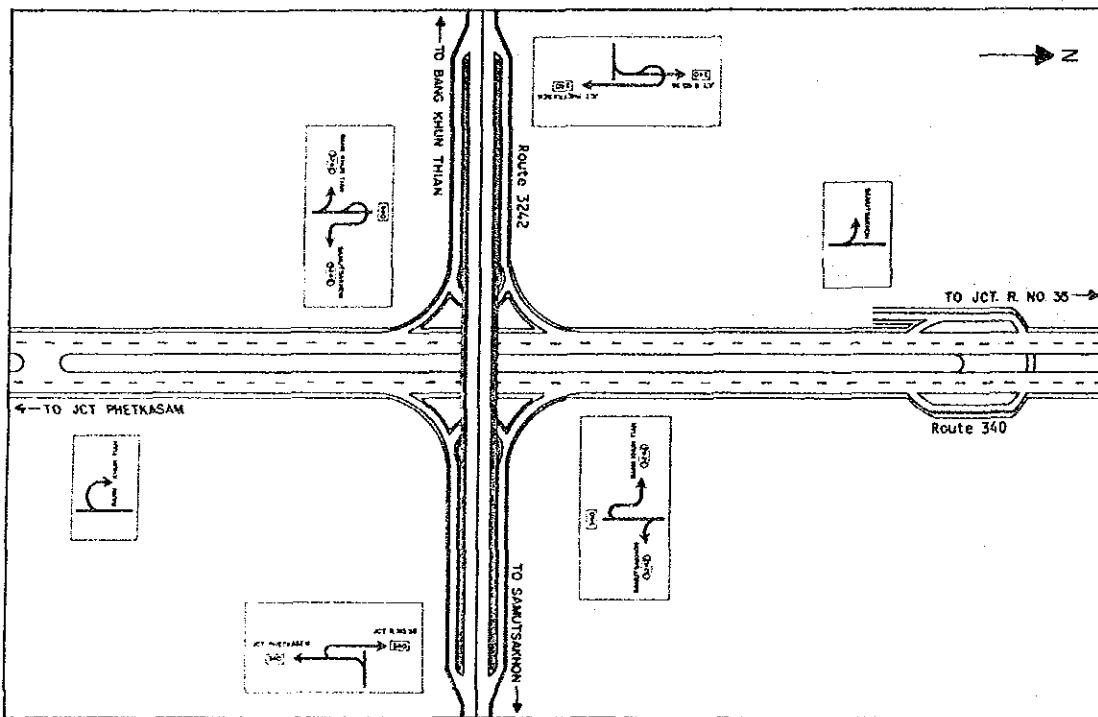
MEASURES

The installation of guide signs (diagrammatic-type) is suggested.

EVALUATION

Installation of guide signs (figure type): Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

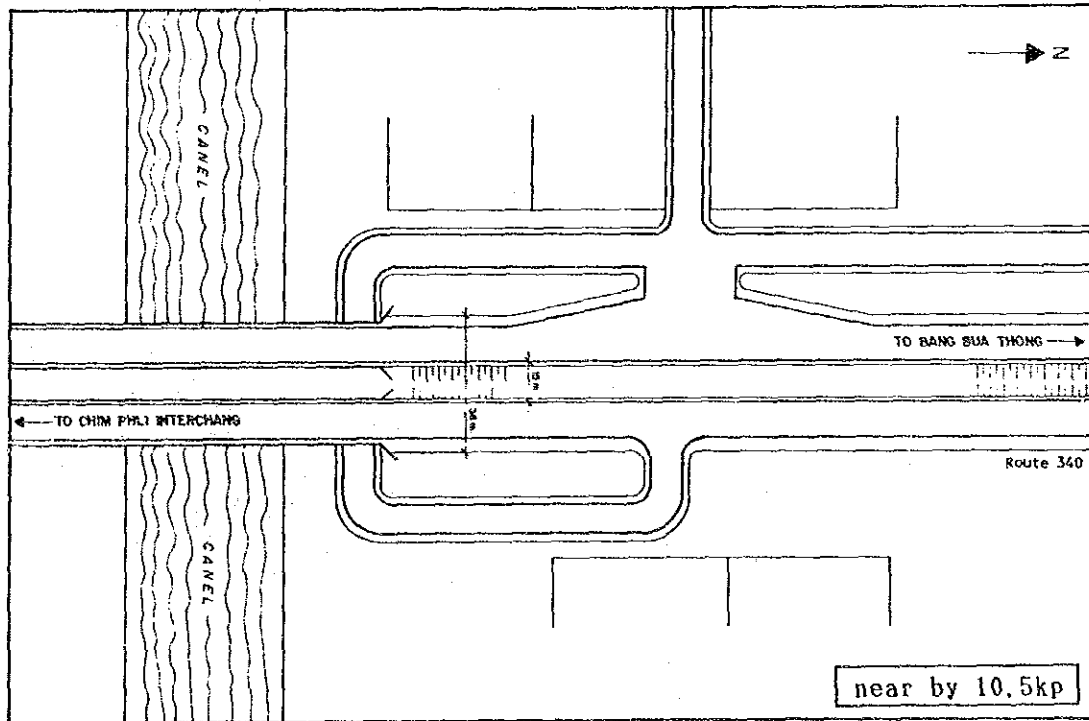


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|--------------------------|---------------------|-------------------------------|--------------------------|---------------------------|---|-----------------|
| LOCATION NO. | 50 | | LOCATION NAME | | Wat Si Boon Rueng | | |
| ROUTE NO. | 340 | CONTROL SECTION NO. | 201 | K.P. OF PROBLEM LOCATION | K.P. 10.000 - K.P. 11.000 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 8.027 - K.P. 17.000 | | | | | | |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | THONBURI | | DISTRICT CODE | 415 |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 26,299 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 24.8 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 226 |
| | (PEAK HOUR) MAJOR ROAD | 2,199 | | (PEAK HOUR) MAJOR ROAD | 25.2 | ACCIDENT RATE (PERSONS/100 MIL. VEH KM) | 0.0 |
| NO. OF ACCIDENTS(CASES) | 0 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | WHOLE CONTROL SECTION | 4.4 |
| | | | | (INJURIES) | 0 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

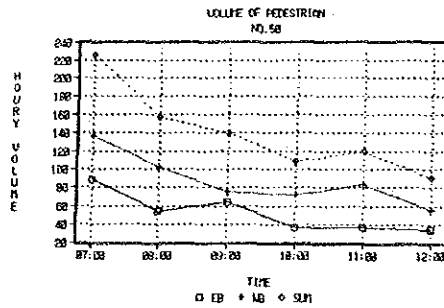
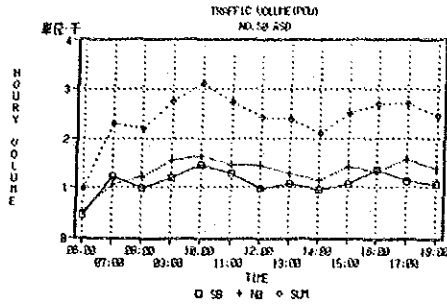
This is the intersection of R340 and a soi. A school, a Sunday market, etc. are found beyond the soi.

TRAFFIC SAFETY /CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | 0 |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STLOY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) |
| 50 | 340 | 201 | 10+000 - 11+000 | 1.000 | 41,408 | 41,408 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|-----|--------|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | | OTHERS | |
| 50 | 340 | 201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | SUM | REMARKS | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 50 | 340 | 201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

COMMENTS ON TRAFFIC CONDITION

R340 satisfies high-level design standards and allows cars to travel at speed.

COMMENTS ON ACCIDENT CONDITION

No accidents have been recorded.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

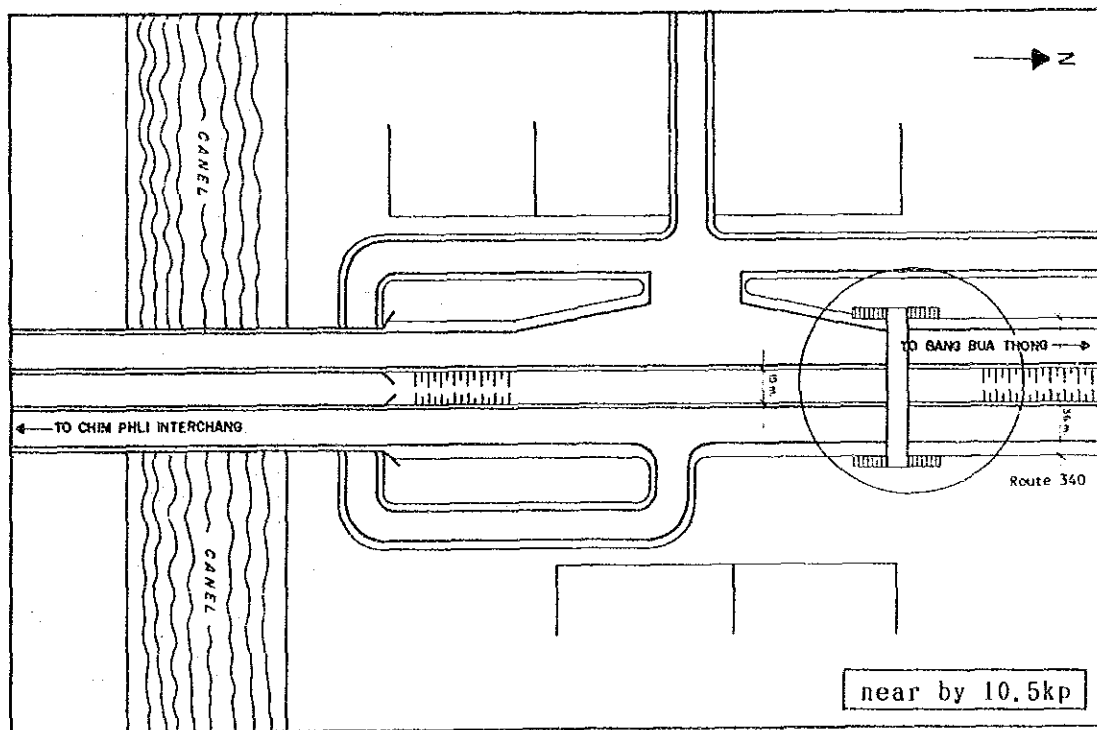
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

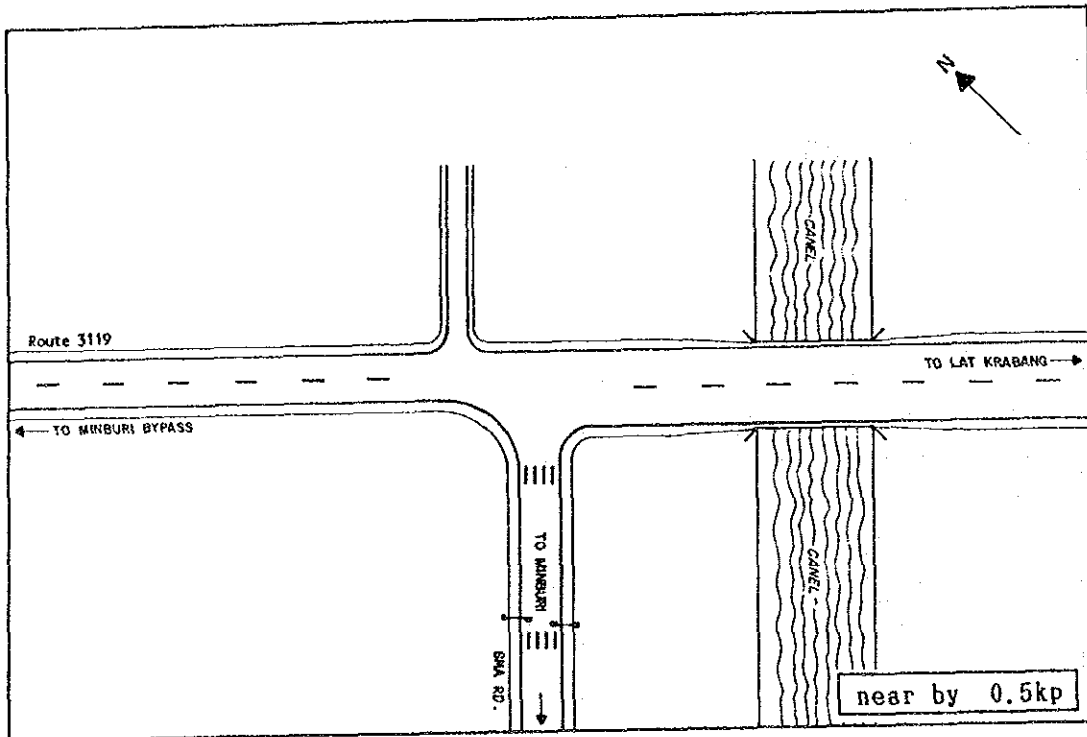


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|--------------------------|---------------------|-------------------------------|--------------------------|-------------------------|--|---------------|
| LOCATION NO. | 51 | | LOCATION NAME | | Minburi | | |
| ROUTE NO. | 3119/BMA | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 0.000 - K.P. 1.000 | ROAD CONDITION | Inter-section |
| K.P. OF CONTROL SECT. | K.P. 0.000 - K.P. 11.003 | | | | | DISTRICT CODE | 411 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | BANGKOK | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 33,555 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 36.4 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | |
| | (PEAK HOUR) MAJOR ROAD | 2,808 | | (PEAK HOUR) MAJOR ROAD | 37.1 | ACCIDENT RATE (PERSONS/100 MIL. VEH KM.) | 197.6 |
| NO. OF ACCIDENTS(CASES) | 7 | | CASUALTIES (PERSONS) | (FATALITIES) | 1 | WHOLE CONTROL SECTION | 60.6 |
| | | | | (INJURIES) | 7 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

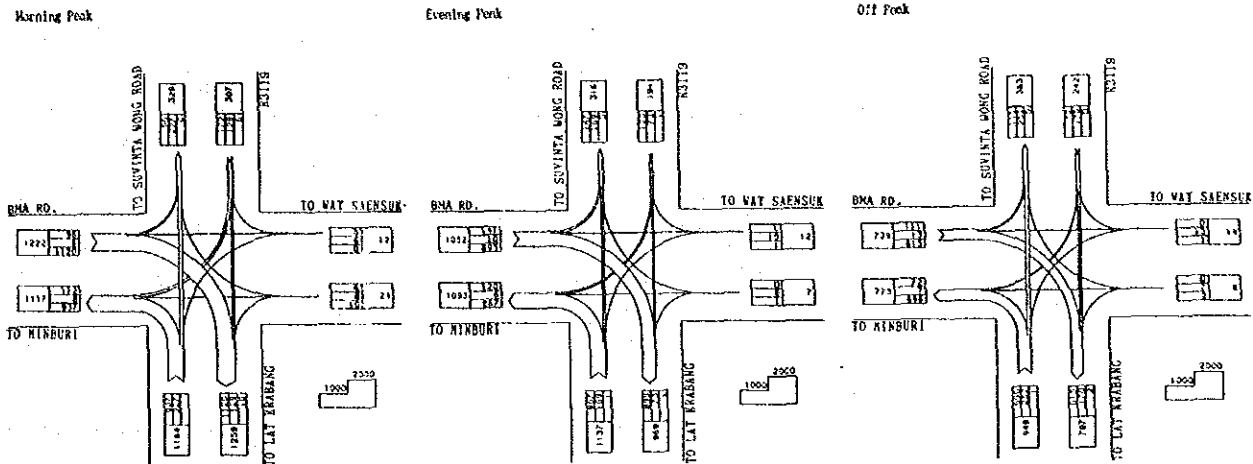
This is the intersection of R3119 and the BMA road. R3119 is a suburban two-lane road that narrows north of this intersection.

TRAFFIC SAFETY /CONTROL DEVICES INSTALLED

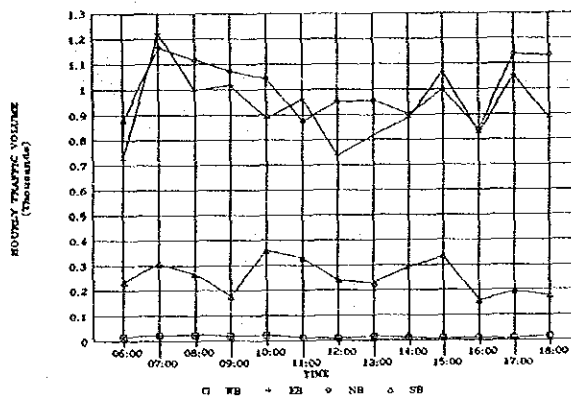
| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | |
| GUARD FENCE | 0 |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



VARIATION IN TRAFFIC VOLUME



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | CASUALTIES | | | | ACCIDENT RATE | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS | | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|---------------|----------------|--------------------------|------------------------------|--|--------------------------------------|---------------------------------------|---|---------|---|--|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/ KM) | ALL ACCIDENTS (CASES/ 100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) | |
| 51 | 3119 | 100 | 0+000 - 1+000 | 1.000 | 11,093 | 11,093 | 7 | 1 | 7 | 8 | 7.0 | 172.9 | 24.7 | 172.9 | 197.6 | 60.6 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|---------------------|--------------------|----------------------|-----------------|------------------|-----------------|------------------|-----------|--------|-----|
| | | | HIT PEDES-TRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLI-SION | HEAD ON COLLI-SION | HIT AT INTER-SECTION | SIDE COLLI-SION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | SLM |
| 51 | 311 | 100 | 1 | 0 | 1 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | REMARKS | |
|-----|-----------|---------------------|--|--------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD/PASSING | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | SEM | | |
| 51 | 3119 | 100 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 7 | |

COMMENTS ON TRAFFIC CONDITION

Although it is a two-lane road, it has a relatively high traffic volume (ADT is 24,140 vehicles, RHV is 36%). Most of the traffic flows on the BMA road and the southern-end of R3119.

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (7 cases). Speeding is the main cause of accidents (5 cases).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Traffic volume is beyond the capacity of the stop-controlled intersection.

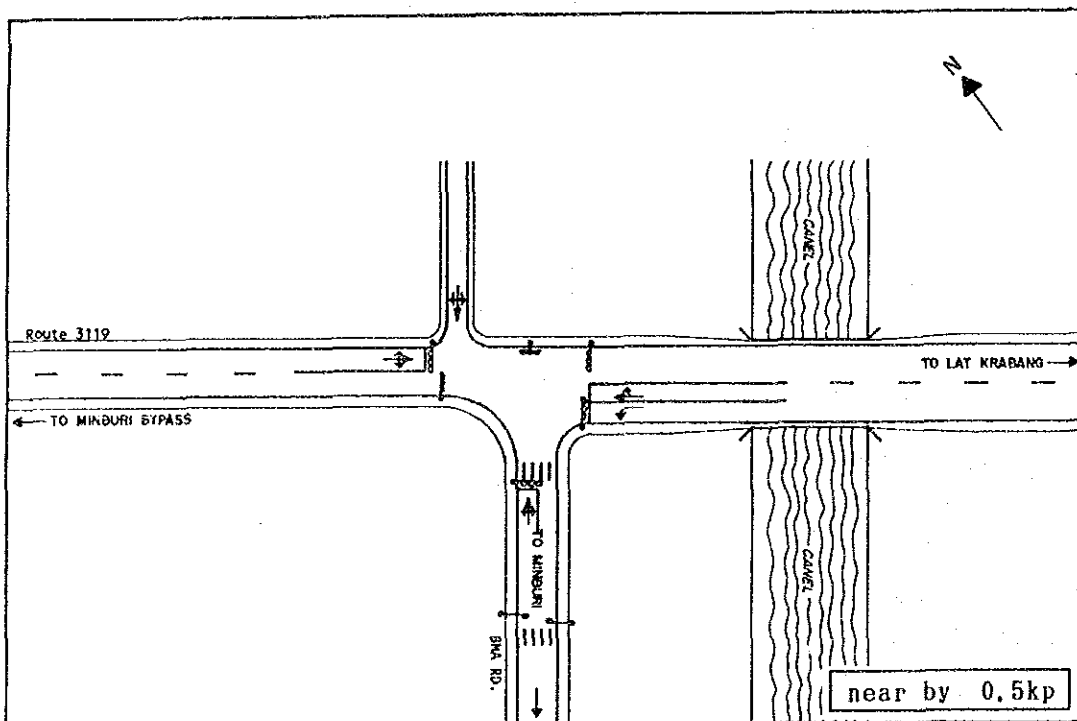
MEASURES

The installation of a pre-timed signal is suggested.

EVALUATION

Installation of pre-timed signal: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN



Morning Peak

| | 1 ϕ | 2 ϕ | 3 ϕ |
|--------------|----------|-----------------|----------|
| | | | |
| | 8.3 | 66.1 | 25.6 |
| Cycle Length | 180 | Saturate Degree | 0.775 |

Evening Peak

| | 1 ϕ | 2 ϕ | 3 ϕ |
|--------------|----------|-----------------|----------|
| | | | |
| | 8.3 | 73.9 | 17.8 |
| Cycle Length | 180 | Saturate Degree | 0.614 |

Off Peak

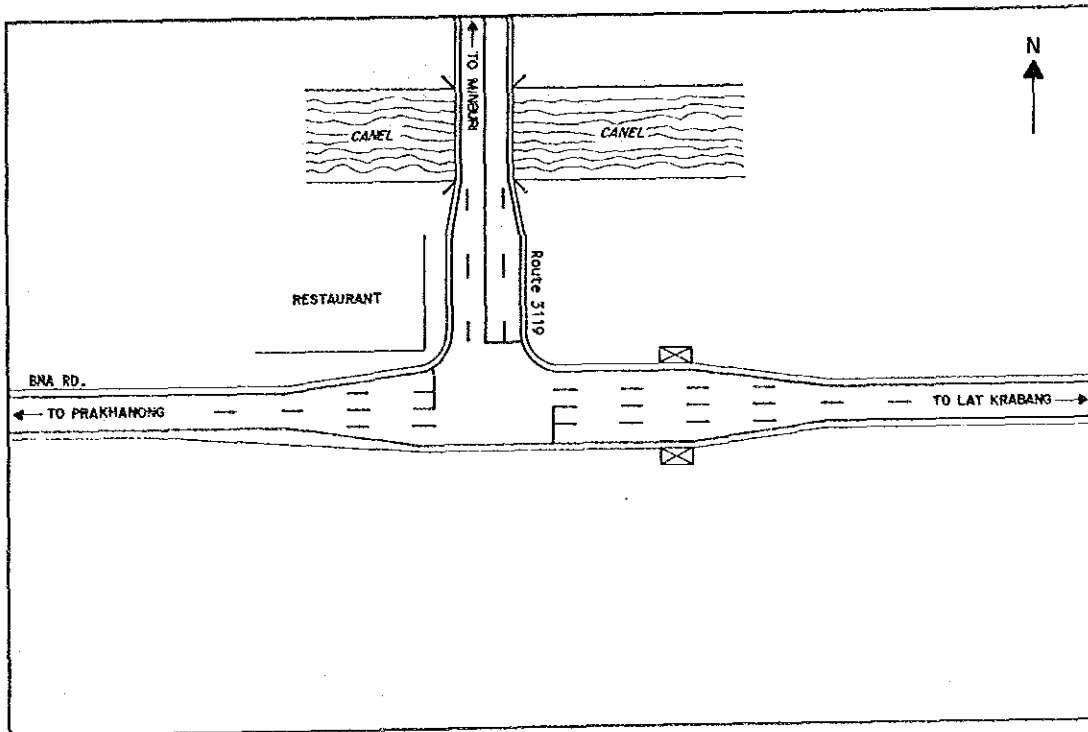
| | 1 ϕ | 2 ϕ | 3 ϕ |
|--------------|----------|-----------------|----------|
| | | | |
| | 8.3 | 65.6 | 26.1 |
| Cycle Length | 180 | Saturate Degree | 0.481 |

DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|---------------------------|---------------------|-------------------------------|--------------------------|----------------------------|--|---------------|
| LOCATION NO. | 52 | | LOCATION NAME | | Onn Nuch-3119 | | |
| ROUTE NO. | 3119/BMA | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 10.500 -- K.P. 11.500 | ROAD CONDITION | Inter-section |
| K.P. OF CONTROL SECT. | K.P. 0.000 -- K.P. 11.003 | | | | | | |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | BANGKOK | | DISTRICT CODE | 411 |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 33,555 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 36.4 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 123.5 |
| | (PEAK HOUR) MAJOR ROAD | 2,808 | | (PEAK HOUR) MAJOR ROAD | 37.1 | ACCIDENT RATE (PERSONS / 100 MIL. VEH. KM) | |
| NO. OF ACCIDENTS(CASES) | 7 | | CASUALTIES (PERSONS) | (FATALITIES) | 3 | WHOLE CONTROL SECTION | 60.6 |
| | | | | (INJURIES) | 2 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

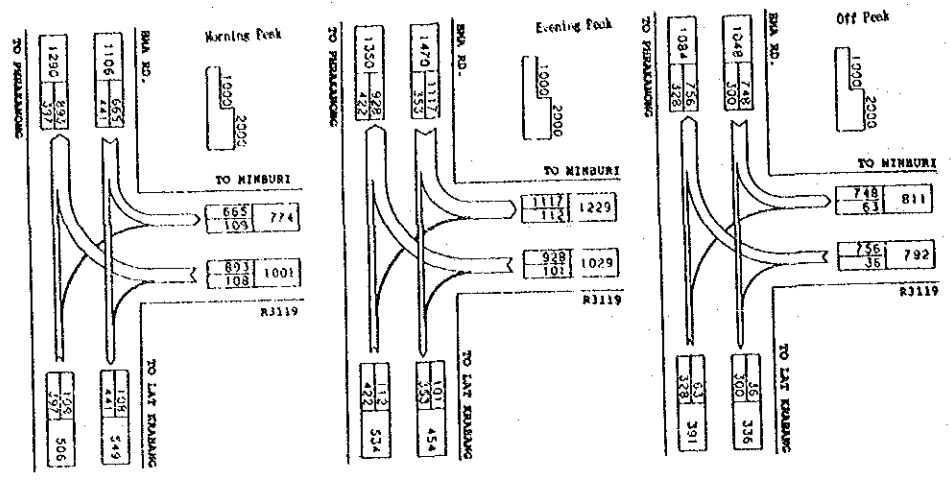
R3119 and R3256 are connected indirectly via the BMA road. This connection forms a T-intersection. R3119 and the BMA road are two-lane roads with wide shoulders.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

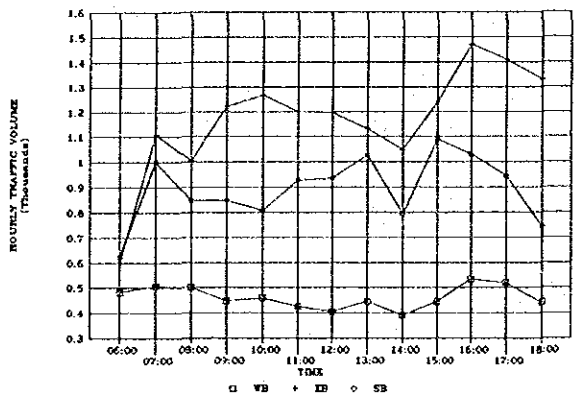
| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANNELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



VARIATION IN TRAFFIC VOLUME



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEN. KM.) | REMARKS | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/LM) | ALL ACCIDENTS (CASES/100 MIL. VEN. KM.) | DEATH (CASUALTIES/100 MIL. VEN. KM.) | INJURY (CASUALTIES/100 MIL. VEN. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEN. KM.) |
| 52 | 3119 | 100 | 10+500 - 11+500 | 1.000 | 11,093 | 11,093 | 7 | 3 | 2 | 5 | 7.0 | 172.9 | 74.1 | 49.4 | 123.5 | 60.6 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | SUM |
| 52 | 311 | 100 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 3 | 0 | 7 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | REMARKS |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | SUM | |
| 52 | 3119 | 100 | 2 | 3 | 0 | 2 | 0 | 0 | 0 | 7 | |

COMMENTS ON TRAFFIC CONDITION

The traffic flows predominantly between R3119 and R3256. The entering traffic is subject to little hourly variation and shows a steady flow in the daytime. The proportion of heavy vehicles is high in the daytime, exceeding 35% of the total volume.

COMMENTS ON ACCIDENT CONDITION

Failure to yield to right-of-way by heavy vehicles is a main cause of traffic accidents.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Traffic volume is beyond the limits of the stop-control intersection. Traffic confusion is aggravated by the improper channelization of the traffic on the BMA road.

MEASURES

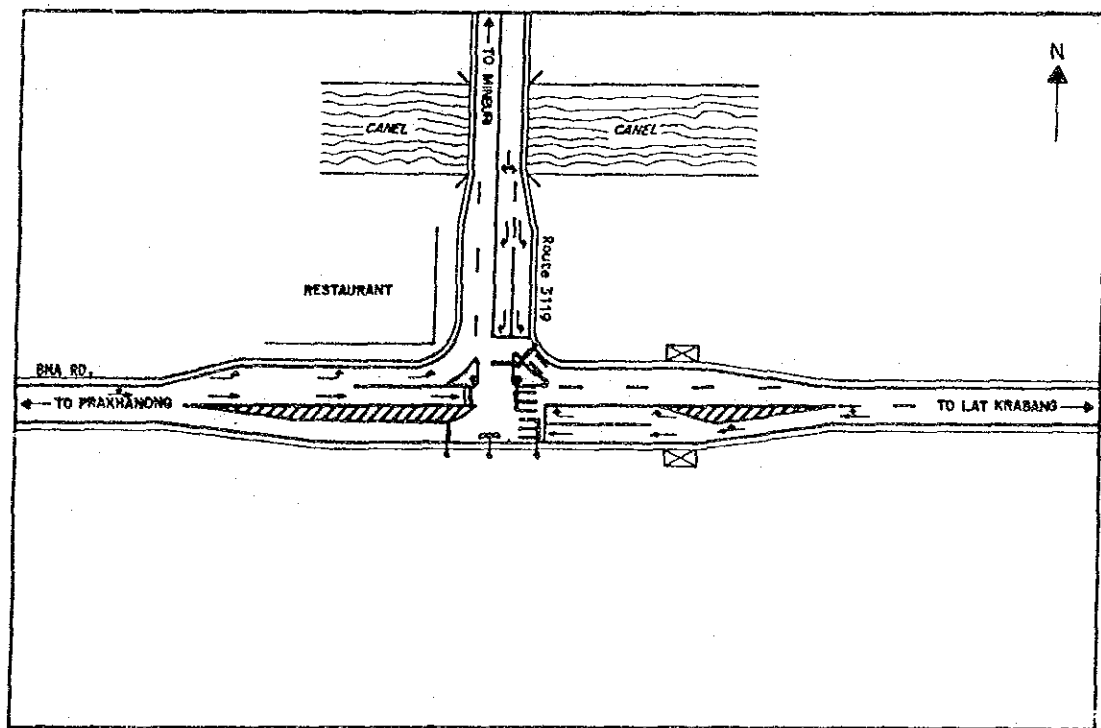
Signalization and channelization to provide left-turn and right-turn lanes are suggested.

EVALUATION

Signalization: Satisfies criteria for improvement.

Channelization to provide left-turn and right-turn lane: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN



Morning Peak

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| ← | | ↓ | |
| ← | | ↓ | |
| 32.3 | | 65.7 | |
| Cycle Length | 70 | Saturate Degree | 0.717 |

Evening Peak

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| ← | | ↓ | |
| ← | | ↓ | |
| 32.9 | | 67.1 | |
| Cycle Length | 73 | Saturate Degree | 0.720 |

Off Peak

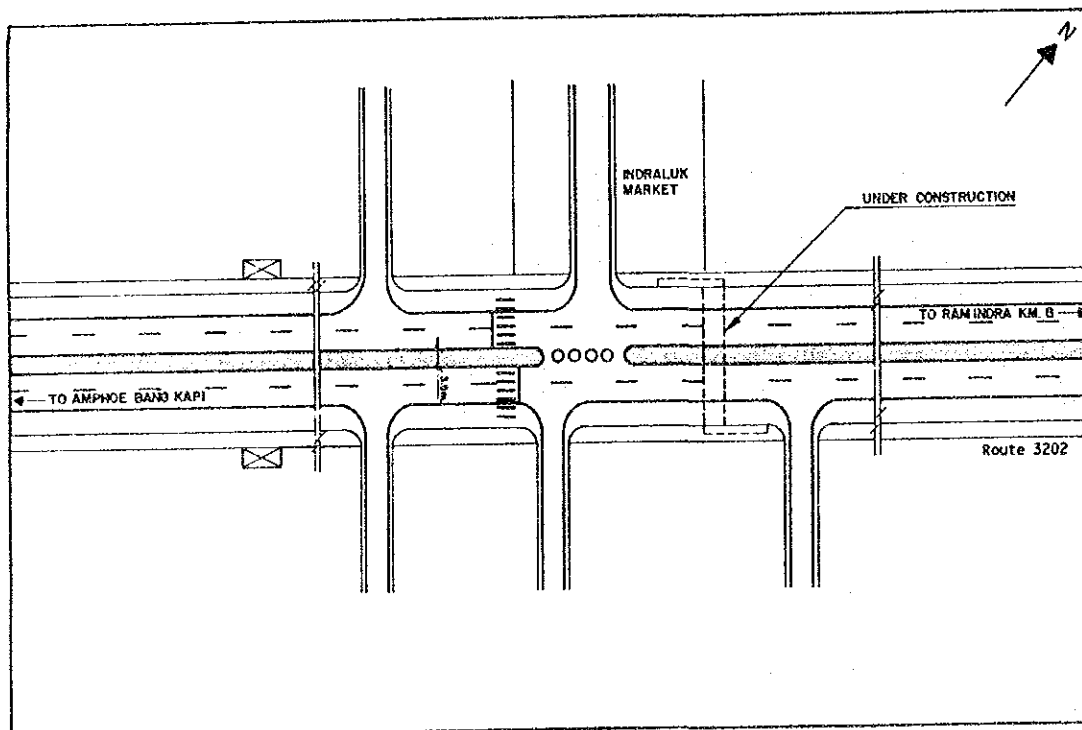
| 1Ø | | 2Ø | |
|--------------|-----|-----------------|-------|
| ← | | ↓ | |
| ← | | ↓ | |
| 28.8 | | 71.2 | |
| Cycle Length | 125 | Saturate Degree | 0.570 |

DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|-----------------------------------|-------------------------|---------------------|-------------------------------|--------------------------|-------------------------|---|---------------|
| LOCATION NO. | 53 | | LOCATION NAME | | Indralak Market | | |
| ROUTE NO. | 3202 | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 3.000 - K.P. 4.000 | ROAD CONDITION | Inter-section |
| K.P. OF CONTROL SECT | K.P. 0.000 - K.P. 8.785 | | | | | DISTRICT CODE | 411 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | BANGKOK | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U) | (WHOLE DAY) MAJOR ROAD | 49,177 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 14.5 | PEDESTRIAN VOLUME (PERSONS / PEAK HOUR) | |
| | (PEAK HOUR) MAJOR ROAD | 3,322 | | (PEAK HOUR) MAJOR ROAD | 16.1 | ACCIDENT RATE (PERSONS / 100 MIL. VEH. KM.) | 0.0 |
| NO. OF ACCIDENTS(CASES) | 0 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | WHOLE CONTROL SECTION | 23.8 |
| | | | | (INJURIES) | 0 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is the intersection of R3202 and a soi. R3202 is a straight four-lane section with a wide median (3.5 m). The median opening at this intersection is closed.

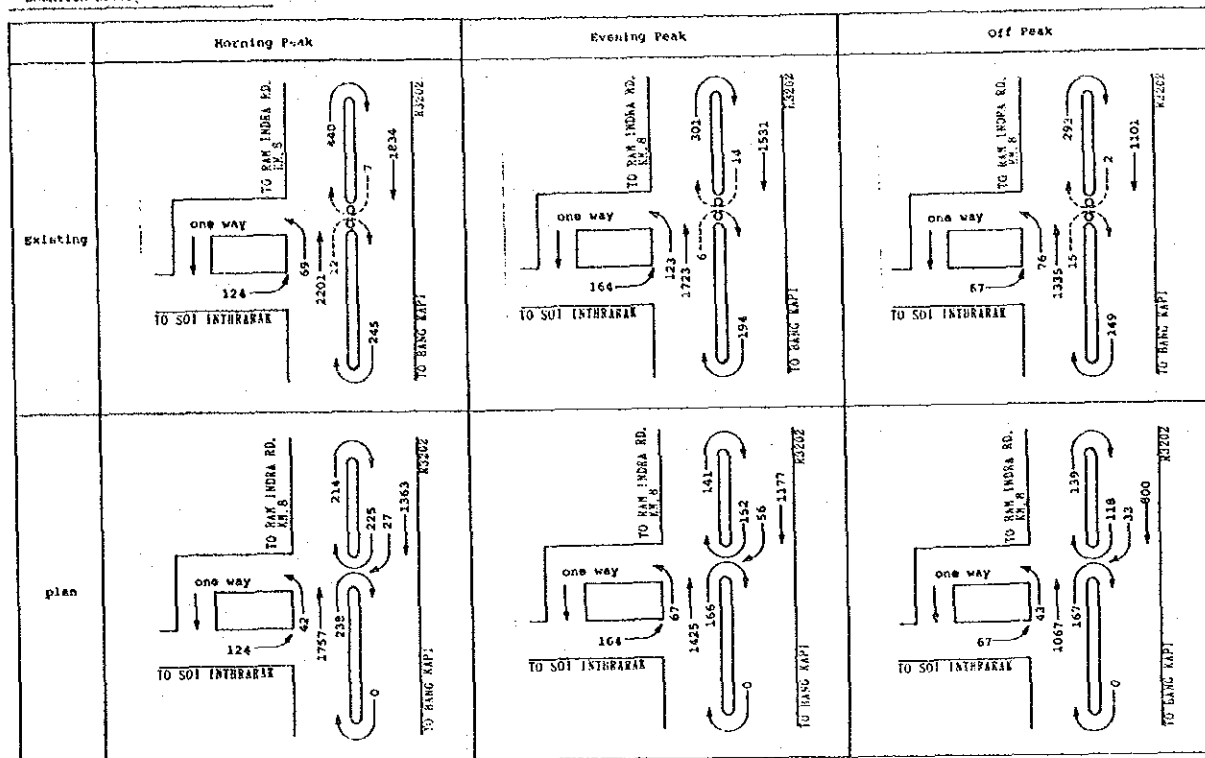
TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANNELIZATION | |

TRAFFIC DATA ANALYSIS

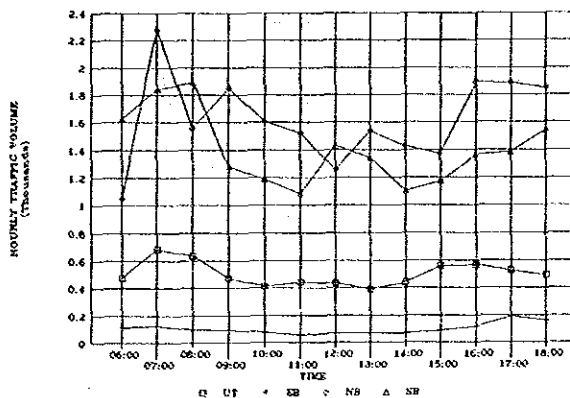
Traffic Data Analysis

LOCATION NO. 53



----- Prohibited direction

VARIATION IN TRAFFIC VOLUME



Accident Data Analysis

| Number of Accident and Casualties | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|-----------|-------------|---------------|-------------|----------------|----------------------|---------------------|-------------------|--------------------|------------------|----------------------|--------------------------|------------------|--------------------|------------------|----------------------|------------------|---------|--|
| SECTION NO. | ROUTE NO. | CONTROL NO. | C.P.-E.P. | LENGTH (KM) | ADT (VEHICLES) | VEHICLE MILES (1000) | NUMBER OF ACCIDENTS | DEATHS (VEHICLES) | TRAFFIC (VEHICLES) | DEATHS (PERSONS) | ACCIDENTS (VEHICLES) | ALL ACCIDENTS (VEHICLES) | DEATHS (PERSONS) | TRAFFIC (VEHICLES) | DEATHS (PERSONS) | ACCIDENTS (VEHICLES) | DEATHS (PERSONS) | REMARKS | |
| 53 | 3202 | 100 | 3-002 - 6-000 | 1.000 | 11,112 | 11,112 | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |

| Number of Accident by type | | | | | | | | | | | | | | | | | | | |
|----------------------------|-----------|-------------|--|---------|-------|------|-------|-------|-------|-------|-------|-------|-------|---|---|---|---|---|---|
| NO. | ROUTE NO. | CONTROL NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CAUSES) | | | | | | | | | | | | | | | | |
| | | | ALL TYPES | VEHICLE | TRUCK | TRAM | OTHER | OTHER | OTHER | OTHER | OTHER | OTHER | OTHER | | | | | | |
| 53 | 3202 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Number of Accident by cause | | | | | | | | | | | | | | |
|-----------------------------|-----------|-------------|--|-------|-------|-------|-------|-------|-------|-------|---------|---|---|---|
| NO. | ROUTE NO. | CONTROL NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | REMARKS | | | |
| | | | OTHER | OTHER | OTHER | OTHER | OTHER | OTHER | OTHER | OTHER | | | | |
| 53 | 3202 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

COMMENTS ON TRAFFIC CONDITION

R3202 has a high traffic volume (ADT is 41,727 vehicles, RHV is 14.5%).

COMMENTS ON ACCIDENT CONDITION

No accidents have been recorded.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Users from the soi are inconvenienced by the closed median which prevents them from crossing the intersection or turning right. Difficulties also exist in U-turning at the nearest median opening because of the heavy traffic volume.

There are many sois intersecting R3202 in the area between the intersection and the median opening. Right-turns from these sois are prevented by the continuous median. As a result, this traffic concentrates in the median opening to turn right.

MEASURES

The installation of signals, or channelization for U-turns and the installation of U-turn signals, are suggested.

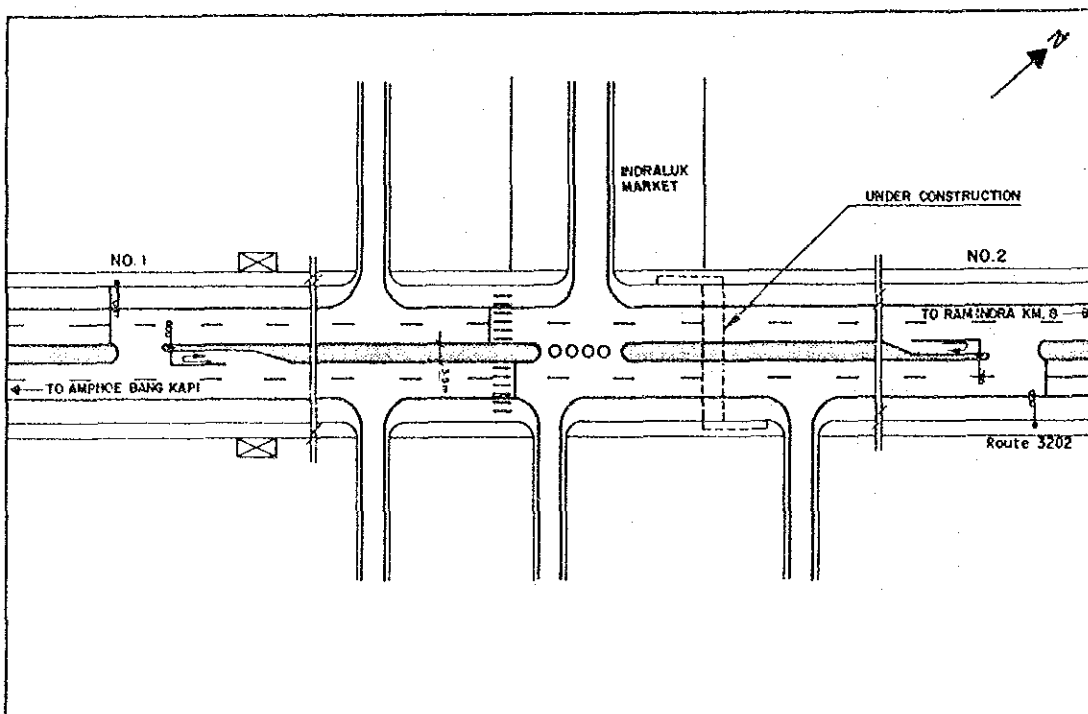
EVALUATION

Installation of signal: Not warranted enough. No clear need established.

Channelization to handle U-turns: Provides U-turn facility.

Installation of U-turn signal: Cannot treat U-turn volume without signal.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN



NO.1

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| → ← | | ↶ | |
| 67.5 | | 32.5 | |
| Cycle Length | 40 | Saturate Degree | 0.693 |

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| → ← | | ↶ | |
| 67.5 | | 32.5 | |
| Cycle Length | 40 | Saturate Degree | 0.544 |

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| → ← | | ↶ | |
| 67.5 | | 32.5 | |
| Cycle Length | 40 | Saturate Degree | 0.420 |

NO.2

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| → ← | | ↶ | |
| 50 | | 50 | |
| Cycle Length | 40 | Saturate Degree | 0.716 |

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| → ← | | ↶ | |
| 55 | | 45 | |
| Cycle Length | 40 | Saturate Degree | 0.559 |

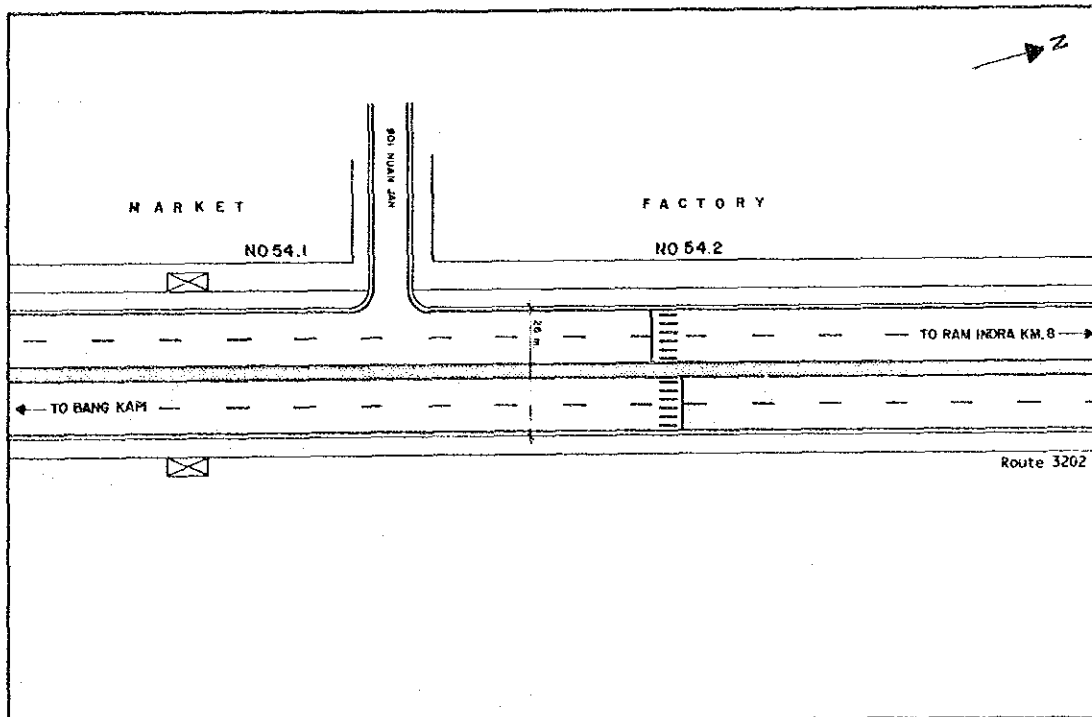
| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| → ← | | ↶ | |
| 45 | | 55 | |
| Cycle Length | 40 | Saturate Degree | 0.446 |

DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|---|---------------------|-------------------------------|---------------------------|--------------------------------|--|---|
| LOCATION NO. | 54 | | LOCATION NAME | | Nuan Chan | | |
| ROUTE NO. | 3202 | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 5.000 - K.P. 6.000 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 0.000 - K.P. 8.785 | | DISTRICT NAME | | | BANGKOK | DISTRICT CODE |
| DIVISION NAME | BANGKOK | | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 14.5 | PEDESTRIAN VOLUME (PERSONS / PEAK HOUR) | 567 |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD 49,177 MINOR ROAD 3,322 (PEAK HOUR) MAJOR ROAD MINOR ROAD | | | | | (PEAK HOUR) MAJOR ROAD 16.1 MINOR ROAD | ACCIDENT RATE (PERSONS / 100 MIL. VEH. KM.) |
| | NO. OF ACCIDENTS(CASES) | 9 | | CASUALTIES (PERSONS) | (FATALITIES) 0 (INJURIES) 2 | | WHOLE CONTROL SECTION |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

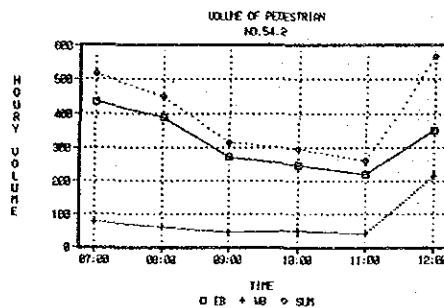
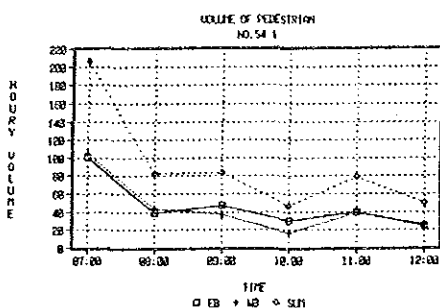
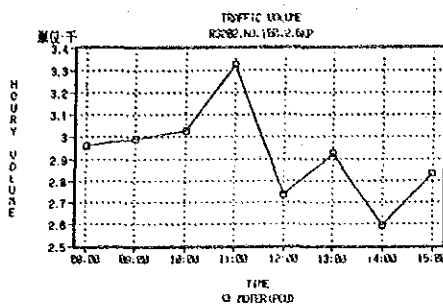
This is an uninterrupted flow section of R320, with supermarkets, factories, etc. lined up on both sides. It is a straight four-lane section with a wide median (3.5 m).

TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P. - K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUAL-TIES/100 MIL. VER. KM.) | REMARKS | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|---------------------------------------|--|--|---------|--|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VER. KM.) | DEATH (CASUAL-TIES/100 MIL. VER. KM.) | INJURY (CASUAL-TIES/100 MIL. VER. KM.) | | | DEATH AND INJURY (CASUAL-TIES/100 MIL. VER. KM.) |
| 54 | 3202 | 100 | 5+000 - 6+060 | 1.000 | 51,112 | 51,112 | 9 | 0 | 2 | 2 | 9.0 | 48.2 | 0.0 | 10.7 | 10.7 | 23.8 | |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | |
| 54 | 320 | 100 | 2 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 9 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | SUM | REMARKS |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | |
| 54 | 3202 | 100 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | |

COMMENTS ON TRAFFIC CONDITION

R3202 has a high traffic volume (ADT is 41,727 vehicles).

COMMENTS ON ACCIDENT CONDITION

Speeding is the cause of most accidents (8 cases).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

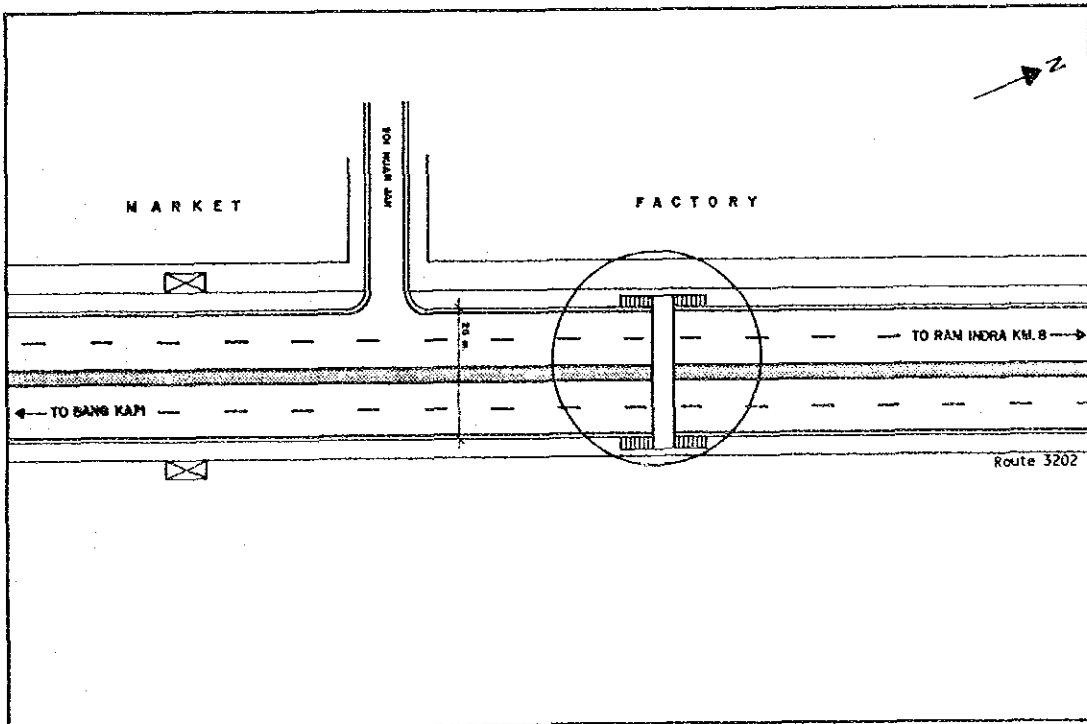
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

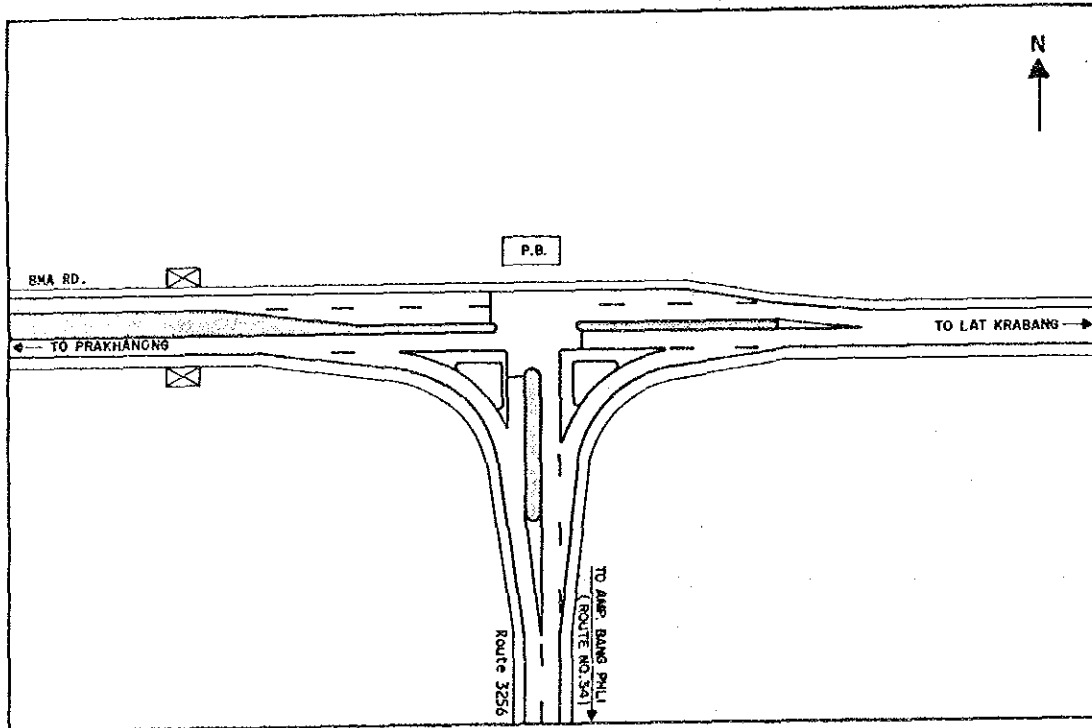


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | | |
|------------------------------------|--|---------------------|-------------------------------|--|---------------------------|---|---------------|------|
| LOCATION NO. | 55 | | LOCATION NAME | | Onn Nuch-3256 | | | |
| ROUTE NO. | 3256/BMA | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 11.000 - K.P. 12.000 | ROAD CONDITION | Inter-section | |
| K.P. OF CONTRDL SECT | K.P. 11.719 - K.P. 25.629 | | | | | | | |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | BANGKOK | | | DISTRICT CODE | 411 |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | | |
| | MINOR ROAD (PEAK HOUR) MAJOR ROAD MINOR ROAD | | | MINOR ROAD (PEAK HOUR) MAJOR ROAD MINOR ROAD | | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | | 23.2 |
| NO. OF ACCIDENTS(CASES) | 2 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | WHOLE CONTROL SECTION | 20.0 | |
| | | | | (INJURIES) | 1 | | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is the intersection of R3256 and the BMA road. Both R3256 and the BMA road sections are straight two-lane sections. Traffic at the intersection is channelized.

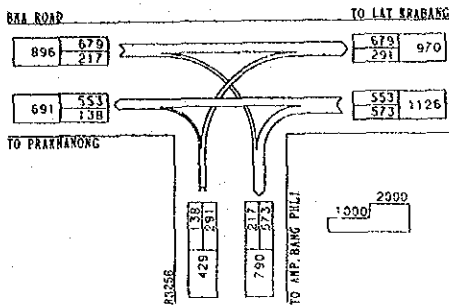
TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | 0 |

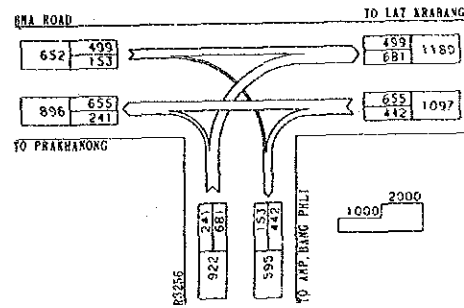
TRAFFIC DATA ANALYSIS

Traffic Data Analysis

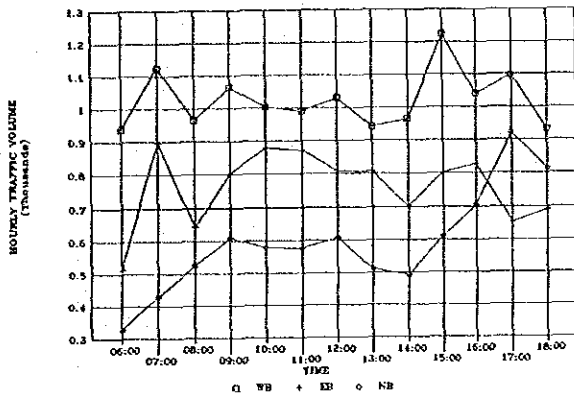
Morning Peak



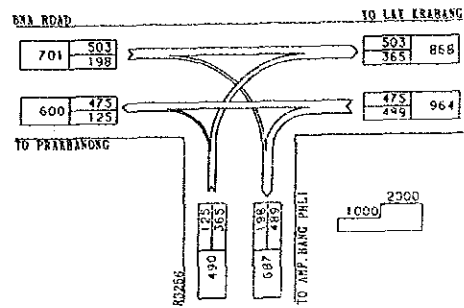
Evening Peak



VARIATION IN TRAFFIC VOLUME



Off Peak



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P. - K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS | |
|-------------------|-----------|---------------------|-----------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---|---------|---------------------------------------|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | | | INJURY (CASUALTIES/100 MIL. VEH. KM.) |
| 55 | 3256 | 100 | 11+000 - 12+000 | 1.000 | 11,831 | 11,831 | 2 | 0 | 1 | 1 | 2.0 | 46.3 | 0.0 | 23.2 | 23.2 | 20.0 |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | | |
| 55 | 325 | 100 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | REMARKS | | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|---------|---|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 55 | 3256 | 100 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | |

COMMENTS ON TRAFFIC CONDITION

R3256 is a north-south road running in a suburban area by a connection to the southern end of R3119 (traffic flow data is not available).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (2 cases).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Traffic volume is beyond the capacity of the stop-controlled intersection.

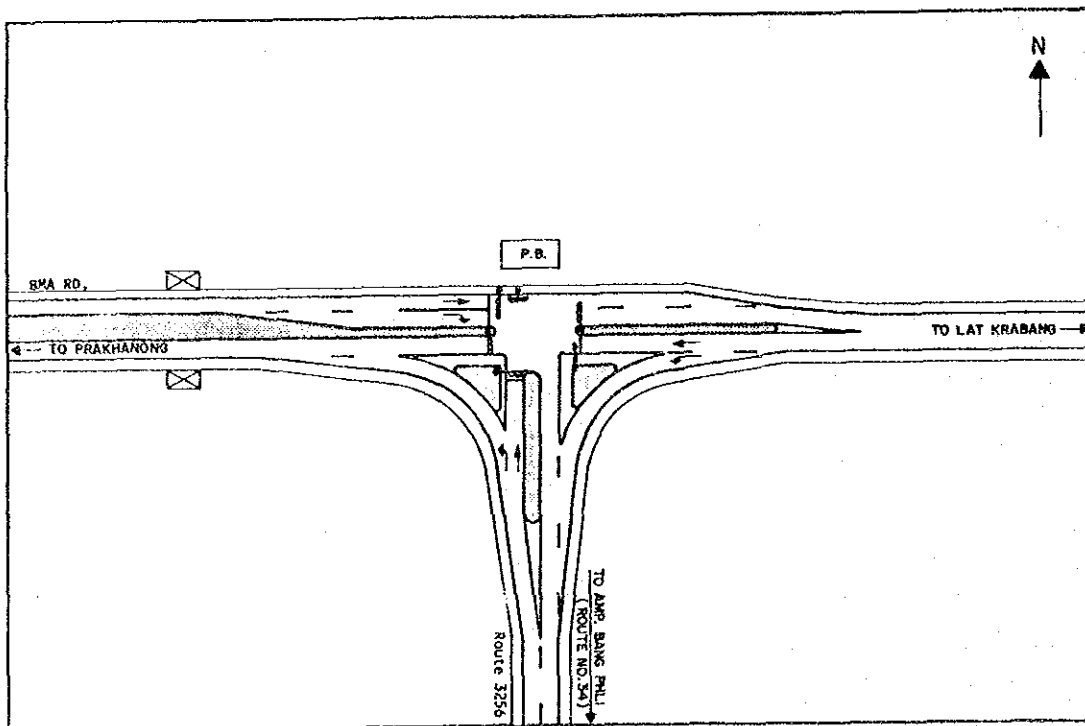
MEASURES

The installation of a pre-timed signal is suggested.

EVALUATION

Installation of pre-timed signal: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN



Morning Peak

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| ← | | ↑ | |
| 60.3 | | 39.7 | |
| Cycle Length | 63 | Saturate Degree | 0.438 |

Evening Peak

| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| ← | | ↑ | |
| 47.8 | | 52.2 | |
| Cycle Length | 67 | Saturate Degree | 0.705 |

Off Peak

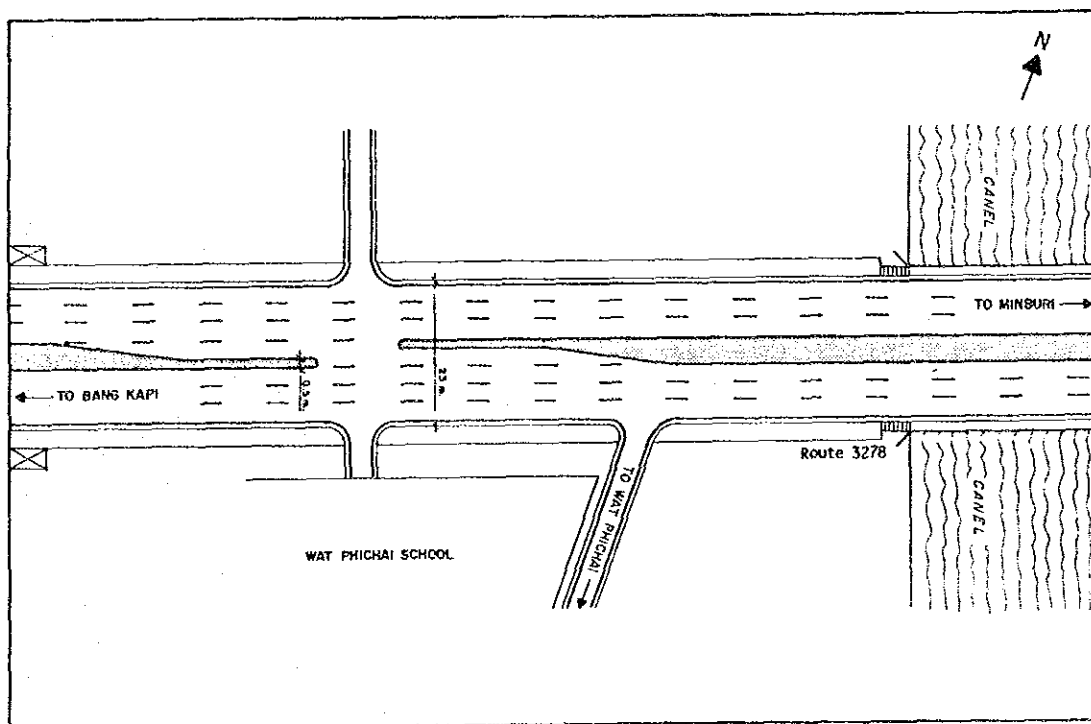
| 1Ø | | 2Ø | |
|--------------|----|-----------------|-------|
| ← | | ↑ | |
| 53.7 | | 46.3 | |
| Cycle Length | 54 | Saturate Degree | 0.455 |

DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|------------------------------------|-------------------------|---------------------|-------------------------------|--------------------------|-------------------------|--|-----------------|
| LOCATION NO. | 56 | | LOCATION NAME | | Wat Phichai | | |
| ROUTE NO. | 3278 | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 0.500 - K.P. 1.500 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 0.283 - K.P. 9.350 | | | | | | |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | BANGKOK | | DISTRICT CODE | 411 |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 14,445 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 23.0 | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | 288 |
| | (PEAK HOUR) MAJOR ROAD | 1,190 | | (PEAK HOUR) MAJOR ROAD | 35.1 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.1) | 0.0 |
| NO. OF ACCIDENTS(CASES) | 3 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | WHOLE CONTROL SECTION | 58.6 |
| | | | | (INJURIES) | 0 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

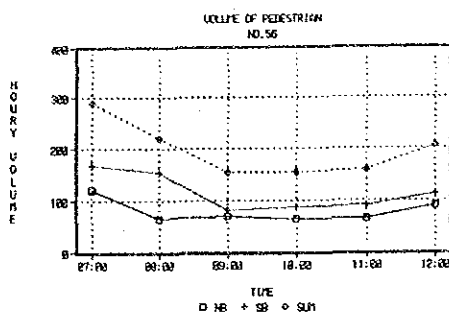
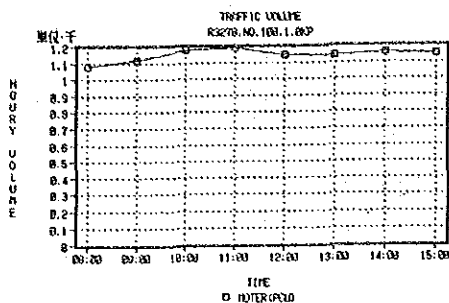
This is the intersection of R3278, a soi and a feeder road leading to a school. R3278 is a straight six-lane section with a wide median (4 m). A right-turn lane is provided on both sides of R3278.

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANNELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P. - K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEN. KM.) | REMARKS | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEN. KM.) | DEATH (CASUALTIES/100 MIL. VEN. KM.) | INJURY (CASUALTIES/100 MIL. VEN. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEN. KM.) |
| 56 | 3278 | 100 | 0+500 - 1+500 | 1.000 | 14,445 | 14,445 | 3 | 0 | 0 | 0 | 3.0 | 56.9 | 0.0 | 0.0 | 0.0 | 58.6 | 0 |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | | | |
| 56 | 327 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 3 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | | SUM | REMARKS |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|---|-----|---------|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 56 | 3278 | 100 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | |

COMMENTS ON TRAFFIC CONDITION

R3278 has high traffic volume (ADT is 11,400 vehicles, RHV is 23%).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (3 cases).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

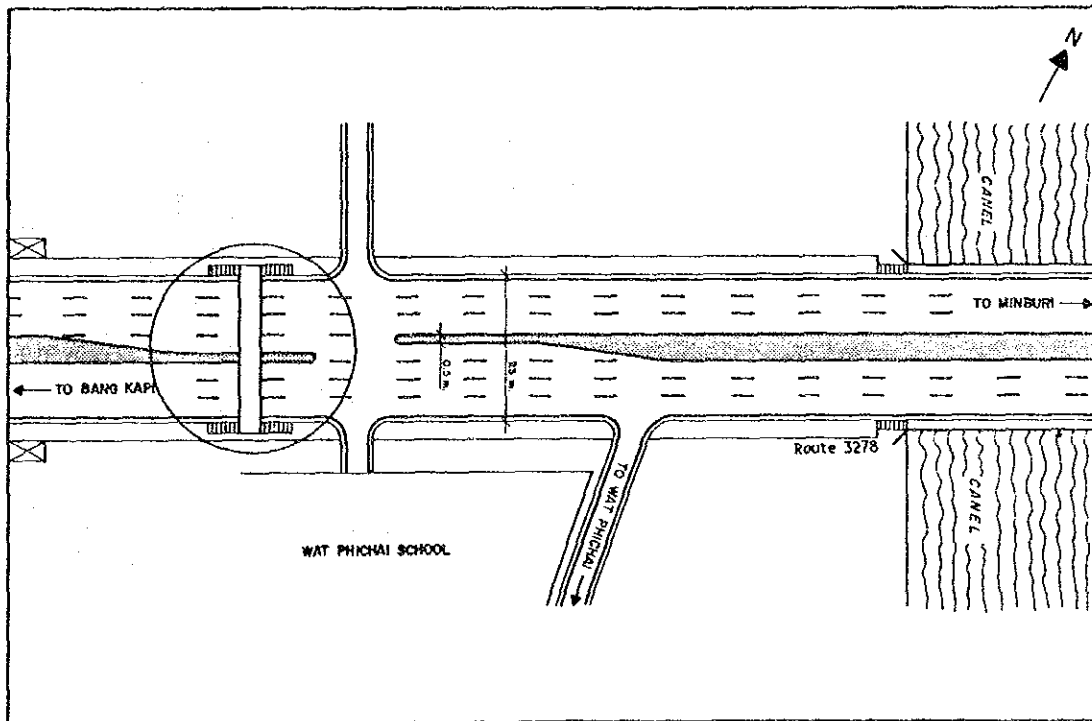
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

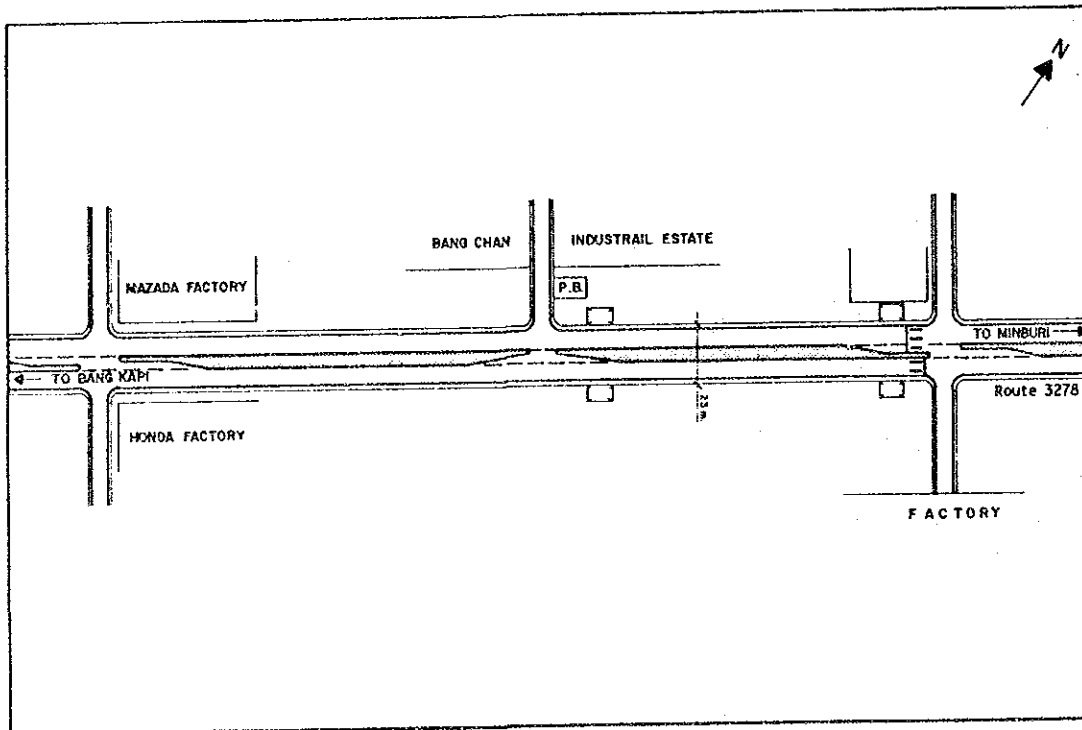


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | |
|-----------------------------------|-------------------------|---------------------|-------------------------------|--------------------------|----------------------------|---|-----------------|
| LOCATION NO. | 57 | | LOCATION NAME | | Bangchan Industrial Estate | | |
| ROUTE NO. | 3278 | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 6.500 - K.P. 8.500 | ROAD CONDITION | Roadway Section |
| K.P. OF CONTROL SECT. | K.P. 0.283 - K.P. 9.350 | | | | | | |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | BANGKOK | | | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U) | (WHOLE DAY) MAJOR ROAD | 14,445 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 23.0 | PEDESTRIAN VOLUME (PERSONS/ PEAK HOUR) | 1,516 |
| | (PEAK HOUR) MAJOR ROAD | 1,190 | | (PEAK HOUR) MAJOR ROAD | 35.1 | ACCIDENT RATE (PERSONS/100 MIL. VEH KM) | 19.0 |
| NO. OF ACCIDENTS(CASES) | 6 | | CASUALTIES (PERSONS) | (FATALITIES) | 1 | WHOLE CONTROL SECTION | 58.6 |
| | | | | (INJURIES) | 1 | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

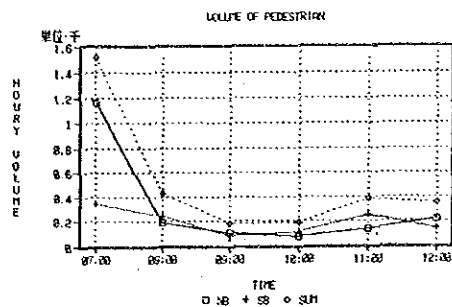
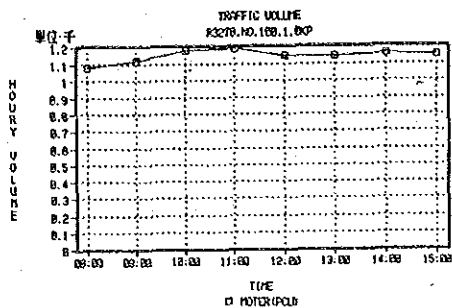
This is the intersection of R3278 and a feeder road leading to a factory. R3278 is a straight six-lane section with a wide median (4 m).

TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P.-K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) | REMARKS | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---|---------|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) |
| 57 | 3278 | 100 | 6+500 - 8+500 | 2.000 | 14,445 | 28,890 | 6 | 1 | 1 | 2 | 3.0 | 36.9 | 9.5 | 9.5 | 19.0 | 58.6 | # |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | SUM | |
| 57 | 327 | 100 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 6 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | SUM | REMARKS | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 57 | 3278 | 100 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | |

COMMENTS ON TRAFFIC CONDITION

R3278 has high traffic volumes (ADT is 11,400 vehicles, RHV is 23%).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (only 6 cases recorded). Most of the accidents (83% of the total) were caused by speeding.

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

The pedestrian crossing is in a dangerous condition.

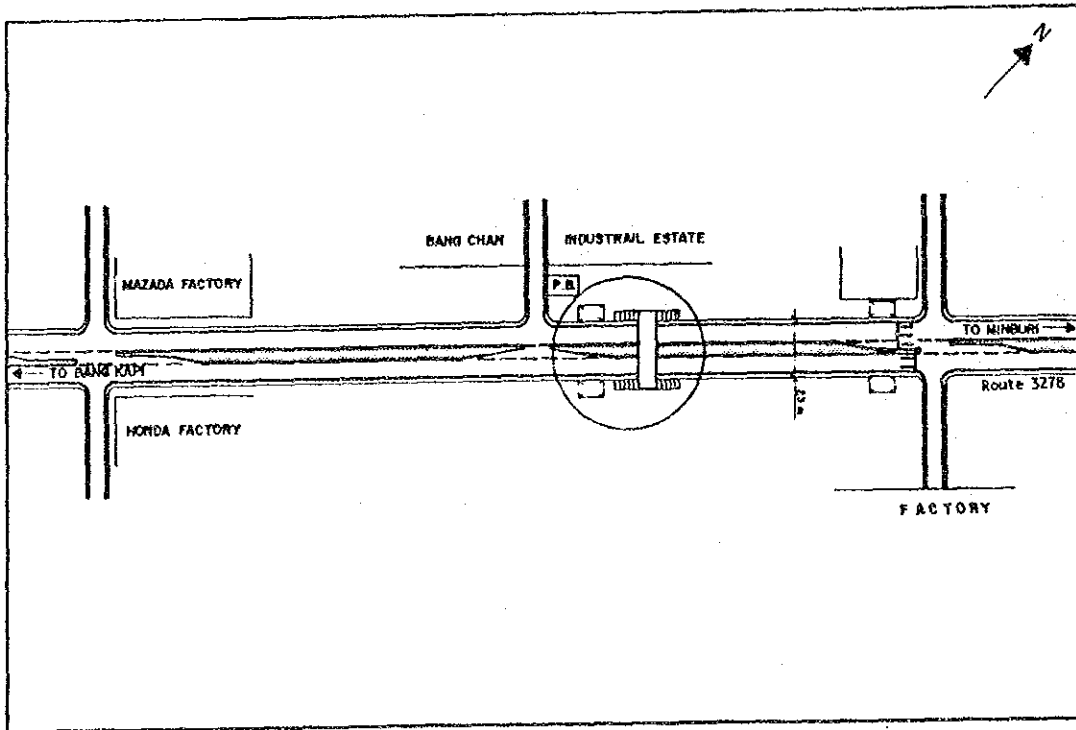
MEASURES

The installation of a pedestrian overpass is suggested.

EVALUATION

Installation of pedestrian overpass: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN

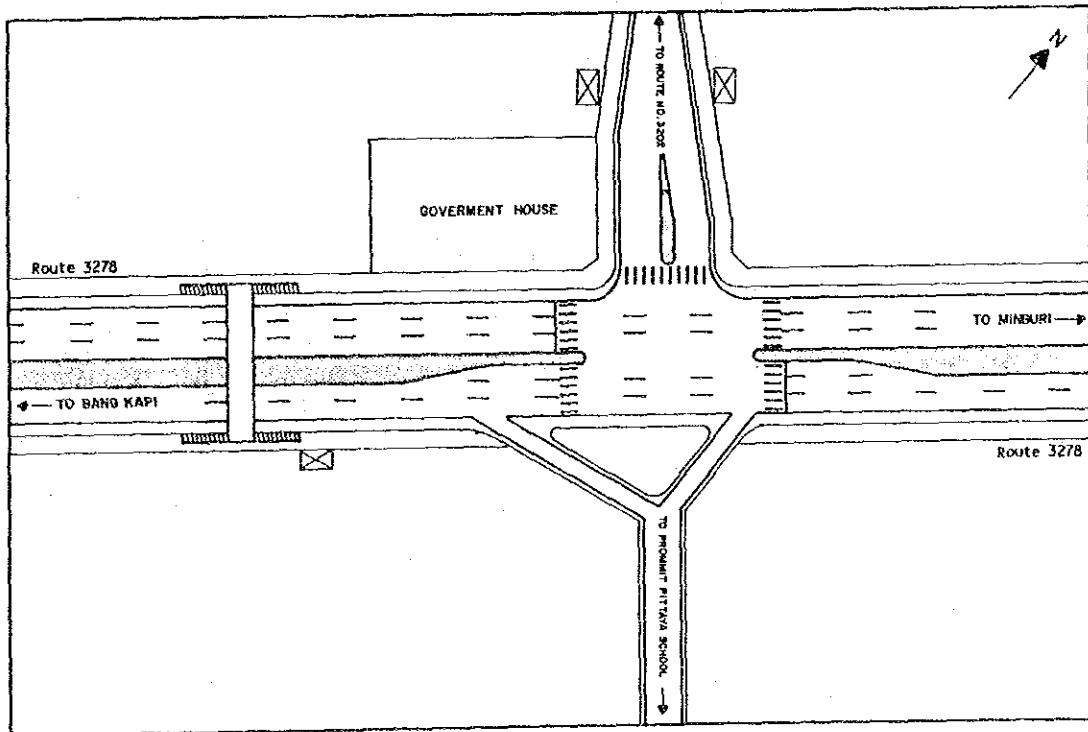


DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | | |
|------------------------------------|-------------------------|---------------------|----------------------|-------------------------------|-------------------------|---------------|-----------------------|--|
| LOCATION NO. | 58 | | LOCATION NAME | | Government House | | | |
| ROUTE NO. | 3278 | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 0.500 - K.P. 1.500 | | ROAD CONDITION | Inter-section |
| K.P. OF CONTROL SECT. | K.P. 0.283 - K.P. 9.350 | | | | | | | |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | BANGKOK | | DISTRICT CODE | 411 | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 14,445 | | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 23.0 | | PEDESTRIAN VOLUME (PERSONS / PEAK HOUR) |
| | (PEAK HOUR) MAJOR ROAD | 1,190 | | | (PEAK HOUR) MAJOR ROAD | 35.1 | | ACCIDENT RATE (PERSONS / 100 MIL. VEH. KM) |
| NO. OF ACCIDENTS(CASES) | 3 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | | WHOLE CONTROL SECTION | 58.6 |
| | | | | (INJURIES) | 0 | | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

This is the intersection of R3278 and a road leading to R3202. R3278 is a straight six-lane section.

TRAFFIC SAFETY / CONTROL DEVICES INSTALLED

| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | |
| GUARD FENCE | |
| CHANELIZATION | |

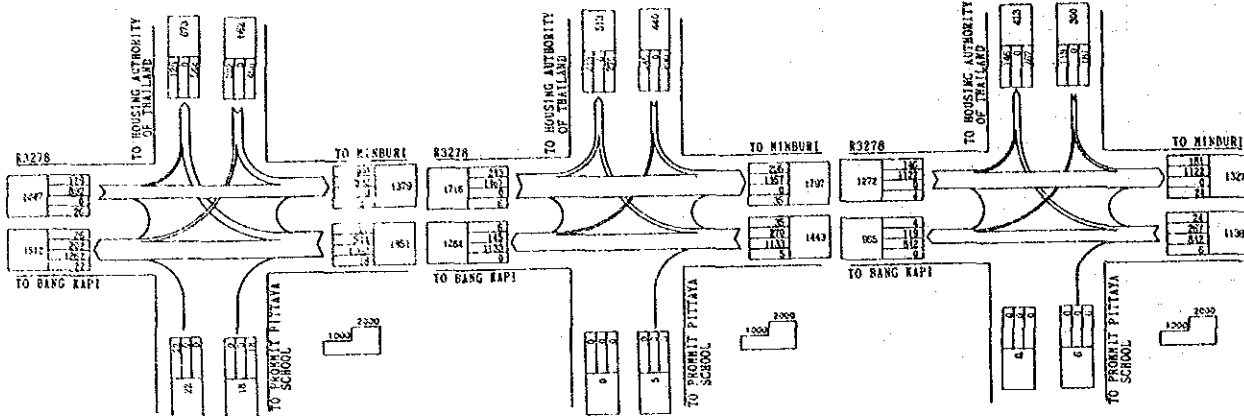
TRAFFIC DATA ANALYSIS

Traffic Data Analysis

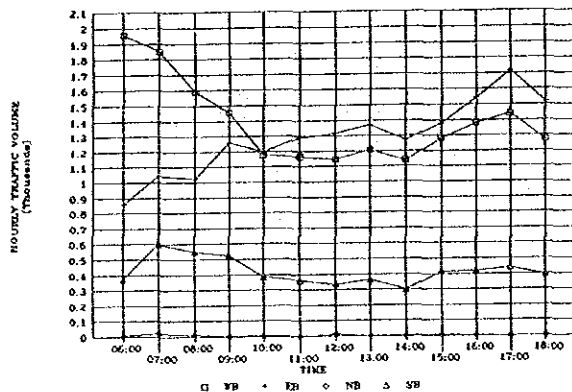
Morning Peak

Evening Peak

Off Peak



VARIATION IN TRAFFIC VOLUME



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P. - K.P. | LENGTH (KM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | REMARKS | | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|-----------------------------|---|--------------------------------------|---------------------------------------|---------|---|---|
| | | | | | ADT (PCU/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ACCIDENT DENSITY (CASES/KM) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM.) | DEATH (CASUALTIES/100 MIL. VEH. KM.) | INJURY (CASUALTIES/100 MIL. VEH. KM.) | | DEATH AND INJURY (CASUALTIES/100 MIL. VEH. KM.) | ACCIDENT RATE OF CONTROL SECTION (CASUALTIES/100 MIL. VEH. KM.) |
| 58 | 3278 | 100 | 0+500 - 1+500 | 1.000 | 14,445 | 14,445 | 3 | 0 | 0 | 0 | 3.0 | 56.9 | 0.0 | 0.0 | 0.0 | 58.6 | # |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | SUM | | | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|---|---|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | | | | | |
| 58 | 327 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 3 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | SUM | REMARKS | |
|-----|-----------|---------------------|--|-------------------------|------------------|-----------------|----------------|--------|--------|-----|---------|--|
| | | | OVER SPEED LIMIT | FAILURE TO YIELD TO ROW | IMPROPER PASSING | VEHICLE DEFECTS | DRUNKEN DRIVER | SLEEPY | OTHERS | | | |
| 58 | 3278 | 100 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | |

COMMENTS ON TRAFFIC CONDITION

R3278 has high traffic volumes (ADT is 11,400 vehicles, RHV is 23%).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (3 cases only).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Traffic volume is beyond the capacity of the stop-controlled intersection.

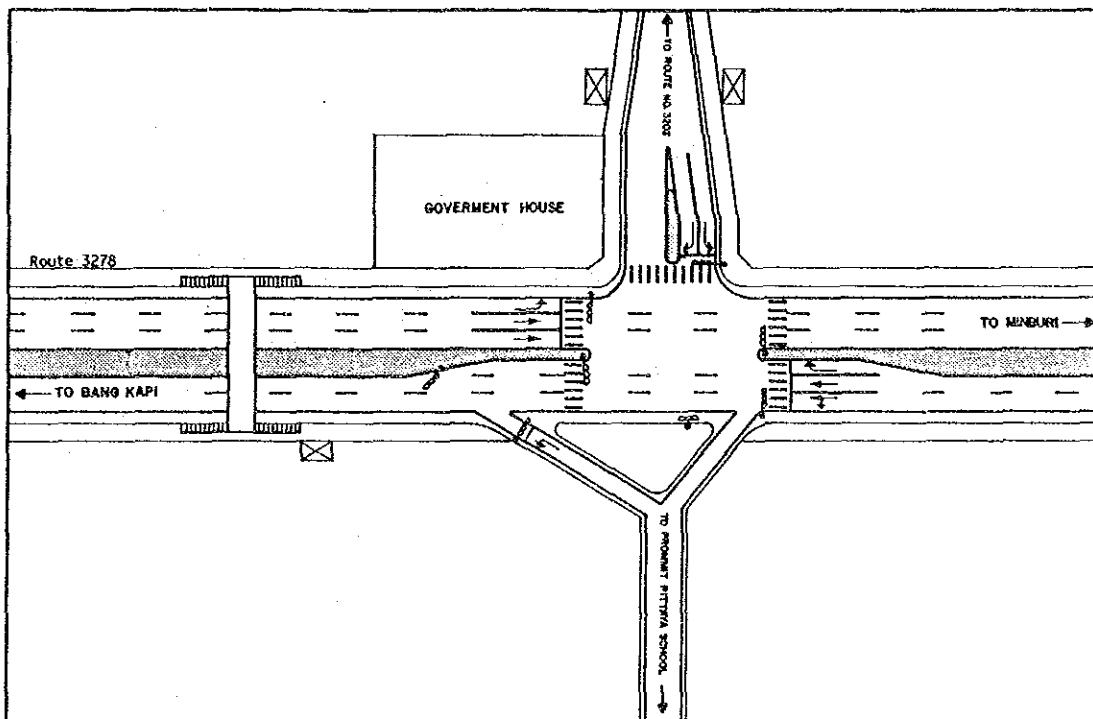
MEASURES

The installation of a pre-timed signal is suggested.

EVALUATION

Installation of pre-timed signal: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN



Morning Peak

| | | |
|--------------|----------|-----------------|
| 1 ϕ | 2 ϕ | 3 ϕ |
| | | |
| 41.8 | 39.1 | 19.1 |
| Cycle Length | 110 | Saturate Degree |
| | | 0.751 |

Evening Peak

| | | |
|--------------|----------|-----------------|
| 1 ϕ | 2 ϕ | 3 ϕ |
| | | |
| 56.9 | 26.0 | 17.1 |
| Cycle Length | 123 | Saturate Degree |
| | | 0.617 |

Off Peak

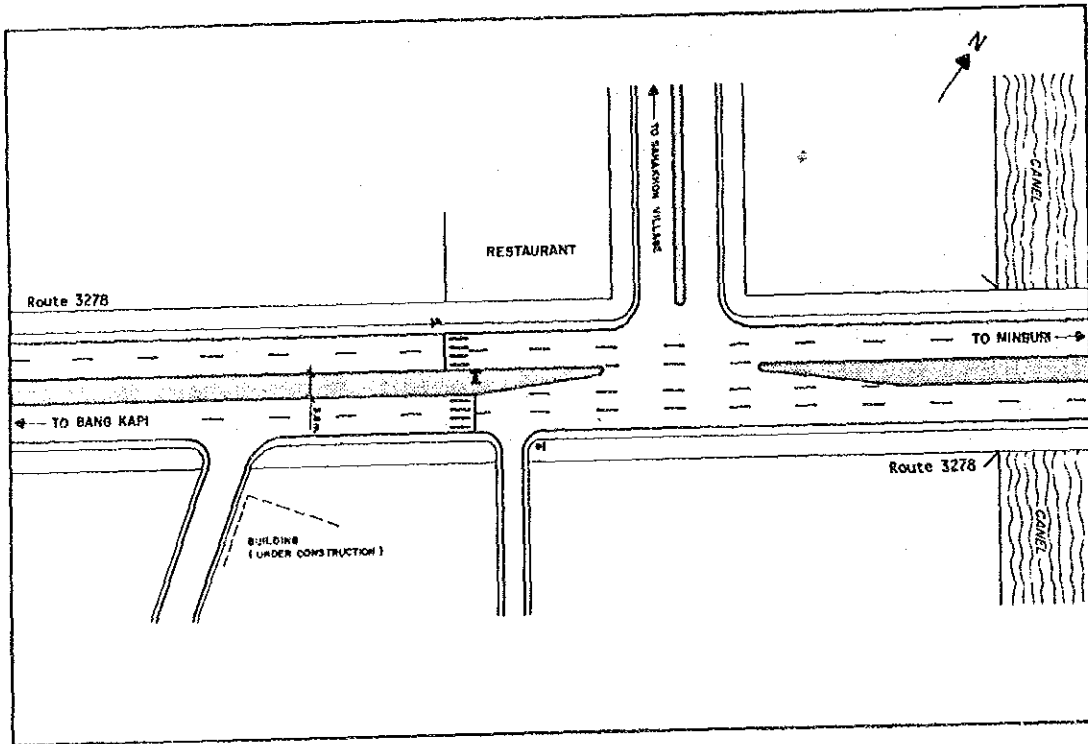
| | | |
|--------------|----------|-----------------|
| 1 ϕ | 2 ϕ | 3 ϕ |
| | | |
| 52.4 | 30.7 | 16.9 |
| Cycle Length | 124 | Saturate Degree |
| | | 0.508 |

DIAGNOSTIC SHEET OF PROBLEM LOCATIONS

(Form - 1)

| | | | | | | | | |
|------------------------------------|--------------------------|---------------------|-------------------------------|--------------------------|-------------------------|---|---------------------------------------|-----|
| LOCATION NO. | 59 | | LOCATION NAME | | Saha Khon Kan Keha | | | |
| ROUTE NO. | 3278 | CONTROL SECTION NO. | 100 | K.P. OF PROBLEM LOCATION | K.P. 3.000 - K.P. 4.000 | ROAD CONDITION | Inter-section | |
| K.P. OF CONTROL SECT. | K.P. 0.283 -- K.P. 9.350 | | DISTRICT NAME | | BANGKOK | | DISTRICT CODE | 411 |
| DIVISION NAME | BANGKOK | | DISTRICT NAME | | BANGKOK | | PEDESTRIAN VOLUME (PERSONS/PEAK HOUR) | |
| TRAFFIC VOLUME (VEHICLES) (P.C.U.) | (WHOLE DAY) MAJOR ROAD | 14,445 | PERCENT OF HEAVY VEHICLES (%) | (WHOLE DAY) MAJOR ROAD | 23.0 | ACCIDENT RATE (PERSONS/100 MIL. VEH. KM.) | 56.9 | |
| | (PEAK HOUR) MAJOR ROAD | 1,190 | | (PEAK HOUR) MAJOR ROAD | 35.1 | | | |
| NO. OF ACCIDENTS(CASES) | 6 | | CASUALTIES (PERSONS) | (FATALITIES) | 0 | WHOLE CONTROL SECTION | 58.6 | |
| | | | | (INJURIES) | 3 | | | |

EXISTING ROAD CONDITION DIAGRAM



COMMENTS ON EXISTING ROAD CONDITION

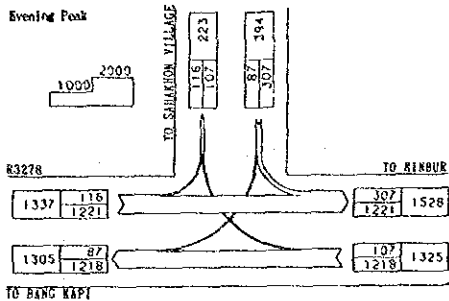
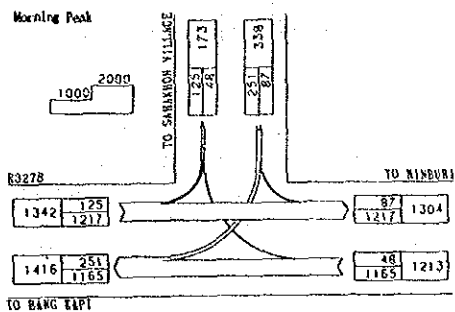
This is the intersection of R3278 and a feeder road leading to Sahakhon Village. R3278 is a straight four-lane section with a wide median (3.6 m).

TRAFFIC SAFETY/CONTROL DEVICES INSTALLED

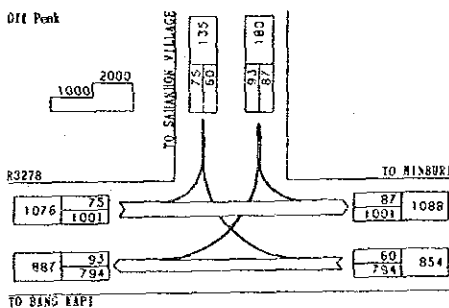
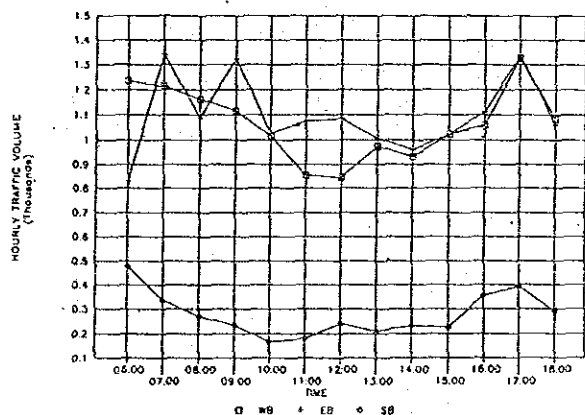
| | |
|---------------------|---|
| TRAFFIC SIGNAL | |
| PEDESTRIAN CROSSING | 0 |
| PEDESTRIAN OVERPASS | |
| STREET LIGHTING | 0 |
| GUARD FENCE | |
| CHANELIZATION | |

TRAFFIC DATA ANALYSIS

Traffic Data Analysis



VARIATION IN TRAFFIC VOLUME



Accident Data Analysis

Number of Accident and Casualties

| STUDY SECTION NO. | ROUTE NO. | CONTROL SECTION NO. | K.P. - K.P. | LENGTH (CM) | TRAFFIC VOLUME | | NUMBER OF ACCIDENTS (CASES) | CASUALTIES | | | ACCIDENT RATE | | | | ACCIDENT RATE OF CONTROL SECTION (CASES/100 MIL. VEH. KM. YR.) | REMARKS | |
|-------------------|-----------|---------------------|---------------|-------------|----------------|-------------------|-----------------------------|---------------|----------------|--------------------------|---|---|--|--|--|---------|---|
| | | | | | ADT (POL/DAY) | VEHICLE KILOMETER | | DEATH (CASES) | INJURY (CASES) | DEATH AND INJURY (CASES) | ALL ACCIDENTS (CASES/100 MIL. VEH. KM. YR.) | DEATH (CASUAL-TIES/100 MIL. VEH. KM. YR.) | INJURY (CASUAL-TIES/100 MIL. VEH. KM. YR.) | DEATH AND INJURY (CASUAL-TIES/100 MIL. VEH. KM. YR.) | | | |
| 59 | 3278 | 100 | 3+000 - 4+000 | 1,000 | 16,445 | 16,445 | 6 | 0 | 3 | 3 | 6.0 | 113.8 | 0.0 | 56.9 | 56.9 | 58.6 | # |

Number of Accident by type

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY TYPE OF ACCIDENT (CASES) | | | | | | | | | | | | | | |
|-----|-----------|---------------------|---|-------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------|------------------|-----------------|------------------|-----------|--------|-----|---|
| | | | HIT PEDESTRIANS | HIT BICYCLE | HIT DURING PASSING | HIT OPPOSED VEHICLE | REAR END COLLISION | HEAD ON COLLISION | HIT AT INTERSECTION | SIDE COLLISION | IMPROPER TURNING | LOST OF CONTROL | HIT FIXED OBJECT | HIT TRAIN | OTHERS | SUM | |
| 59 | 327 | 100 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 6 |

Number of Accident by cause

| NO. | ROUTE NO. | CONTROL SECTION NO. | NUMBER OF ACCIDENTS BY CAUSE OF ACCIDENT | | | | | | | REMARKS | | | | | | | |
|-----|-----------|---------------------|--|------------------|------------------|-----------------|---------------|--------|--------|---------|-----|---|---|---|---|---|---|
| | | | OVER SPEED | FAILURE TO YIELD | IMPROPER PASSING | VEHICLE DEFECTS | DUNKEN DRIVER | SLEEPY | OTHERS | | SUM | | | | | | |
| 59 | 3278 | 100 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |

COMMENTS ON TRAFFIC CONDITION

R3278 has high traffic volumes (ADT is 11,400 vehicles, RHV is 23%).

COMMENTS ON ACCIDENT CONDITION

The accident frequency is low (6 cases only).

POSSIBLE COUNTERMEASURES AND THEIR GROUNDS

PROBLEMS

Traffic volume is beyond the capacity of the stop-controlled intersection.

MEASURES

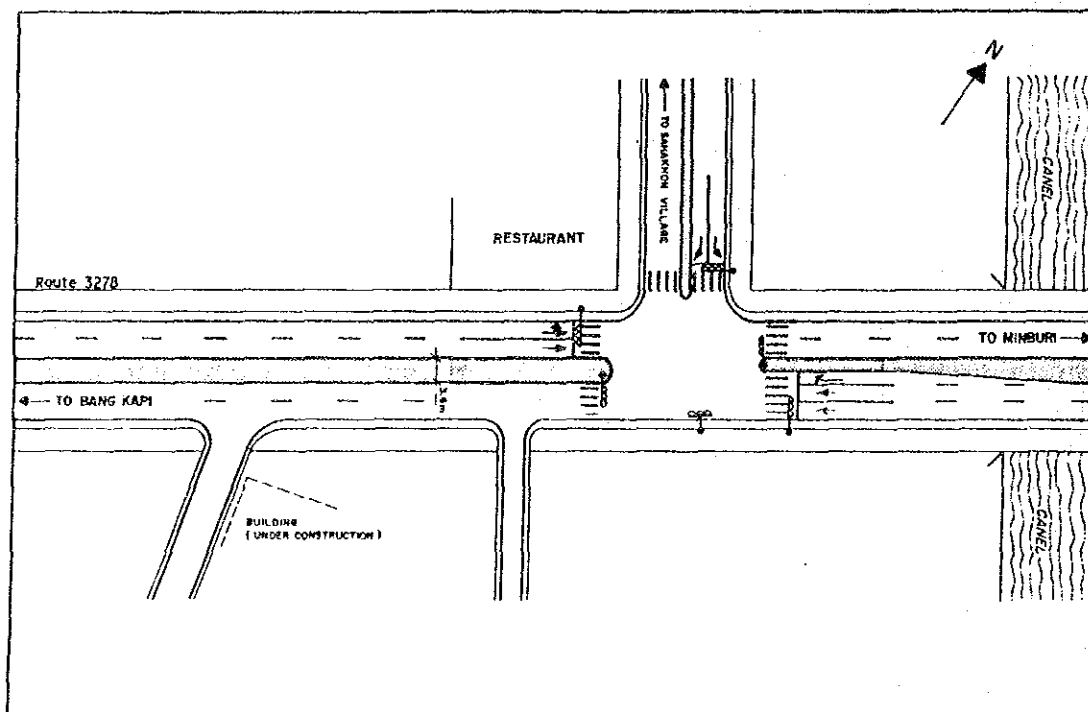
The installation of a pre-timed signal is suggested.

The possible countermeasures described above are classified into ten categories, with the relevant Study Section number indicated for each measure.

EVALUATION

Installation of pre-timed signal: Satisfies criteria for improvement.

ILLUSTRATION OF TRAFFIC SAFETY / OPERATION PLAN



Morning Peak

| | 1Ø | 2Ø | 3Ø |
|--------------|------|-----------------|-------|
| | | | |
| | 62.5 | 8.3 | 29.2 |
| Cycle Length | 96 | Saturate Degree | 0.510 |

Evening Peak

| | 1Ø | 2Ø | 3Ø |
|--------------|------|-----------------|-------|
| | | | |
| | 60.3 | 14.1 | 25.6 |
| Cycle Length | 78 | Saturate Degree | 0.512 |

Off Peak

| | 1Ø | 2Ø | 3Ø |
|--------------|------|-----------------|-------|
| | | | |
| | 71.4 | 10.7 | 17.9 |
| Cycle Length | 112 | Saturate Degree | 0.359 |

**CALCULATION METHOD OF THE MAXIMUM NUMBER OF
VEHICLES MAKING A U-TURN**

U-turn vehicles have to find time gaps in the opposite through-traffic flow during which they can safely complete their turning movement. The maximum number of vehicles which can make a U-turn can be calculated by the following equation, based on the gap acceptance theory.

$$U_{\max} = \frac{Ne^{-rt_1}}{1 - e^{-rt_2}}$$

Where;

- U_{\max} : Maximum number of vehicles making a U-turn (vehicles/hr.)
- N : Vehicles per hour on opposite through lane (one lane effected by U-turn only, vehicles/hr.)
- r : $N/3600$ (vehicles/sec.)
- e : Base of the natural logarithm
- t_1 : Headway of vehicles in the U-turn zone from opposite through-flow (sec.)
- t_2 : Headway of U-turn vehicles (sec.)

The value of t_1 in the equation is the critical acceptable gap (headway) on the opposite through- lane for a U-turn vehicle. In this study, a traffic behaviour survey, carried out using a video camera, was conducted in front of AIT in order to collect acceptable gap data. The value of t_1 was defined in Table 1 according to the results of the video data analysis, and the value of t_2 was defined as 3 sec.

Table 1 The Volume of t_1

| Running Speed (km/hr) | Less than 30 | 30-40 | 40-50 | 50-80 | more than 80 |
|-----------------------|--------------|-------|-------|-------|--------------|
| t_1 (sec) | 3 | 4 | 5 | 6 | 7 |

The maximum number of vehicles making a U-turn (U_{\max}) can be calculated by the above equation and the values of parameters can be determined from Table 1, as shown in Table 2.

Table 2. The Maximum Number of Vehicles Making a U-turn

Unit: veh./hr.

| Running Speed (km/hr) | N (veh./hr.) | 500 | 1000 | 1500 | 2000 | 2500 | 3000 |
|--------------------------|-----------------|-----|------|------|------|------|------|
| Less than 30 | | 967 | 769 | 602 | 466 | 356 | 268 |
| 30 - 40 | | 842 | 582 | 397 | 267 | 178 | 117 |
| 40 - 50 | | 733 | 441 | 262 | 153 | 89 | 51 |
| 50 - 80 | | 638 | 334 | 173 | 88 | 44 | 22 |
| More than 80 | | 555 | 253 | 118 | 50 | 22 | 10 |

N : Vehicles per hour on opposite through-lane
(one lane effected by U-turn only)

ANALYSIS ON THE EFFECTIVENESS OF SIGNAL COORDINATION

The delay caused by the signal installation and the effectiveness of signal coordination were estimated by the following analysis, based on the traffic stream simulation.

(1) Existing Conditions

The existing road and traffic conditions are shown in Figure 1.

(2) Proposed Signal Indications

Figure 2 shows the proposed signal phasing plans for each intersection.

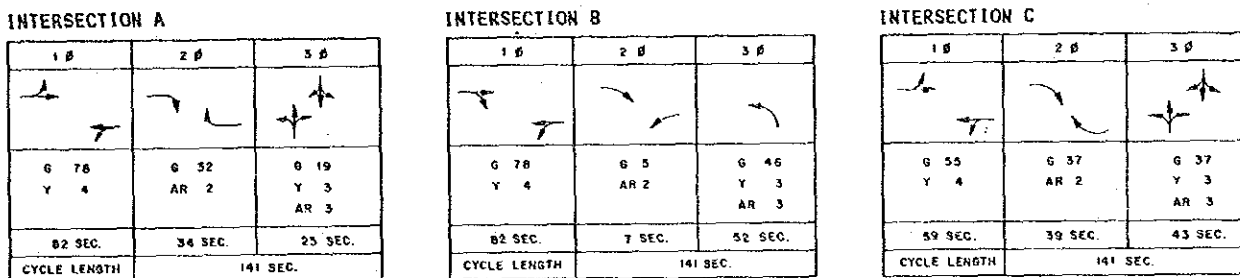


Figure 2 PROPOSED SIGNAL PHASING PLANS

The offset parameters on the basis of coordinated speed, are set as follows:

- The offset between intersection A and B is 35 sec.;
- The offset between intersection B and C is 108 sec.

(3) Evaluation of Delay

Table 1 shows the delays which were calculated by the traffic stream simulation.

This table indicates the following:

- A through-traffic delay of approximately 12 seconds occurs when signals are installed. This delay does not

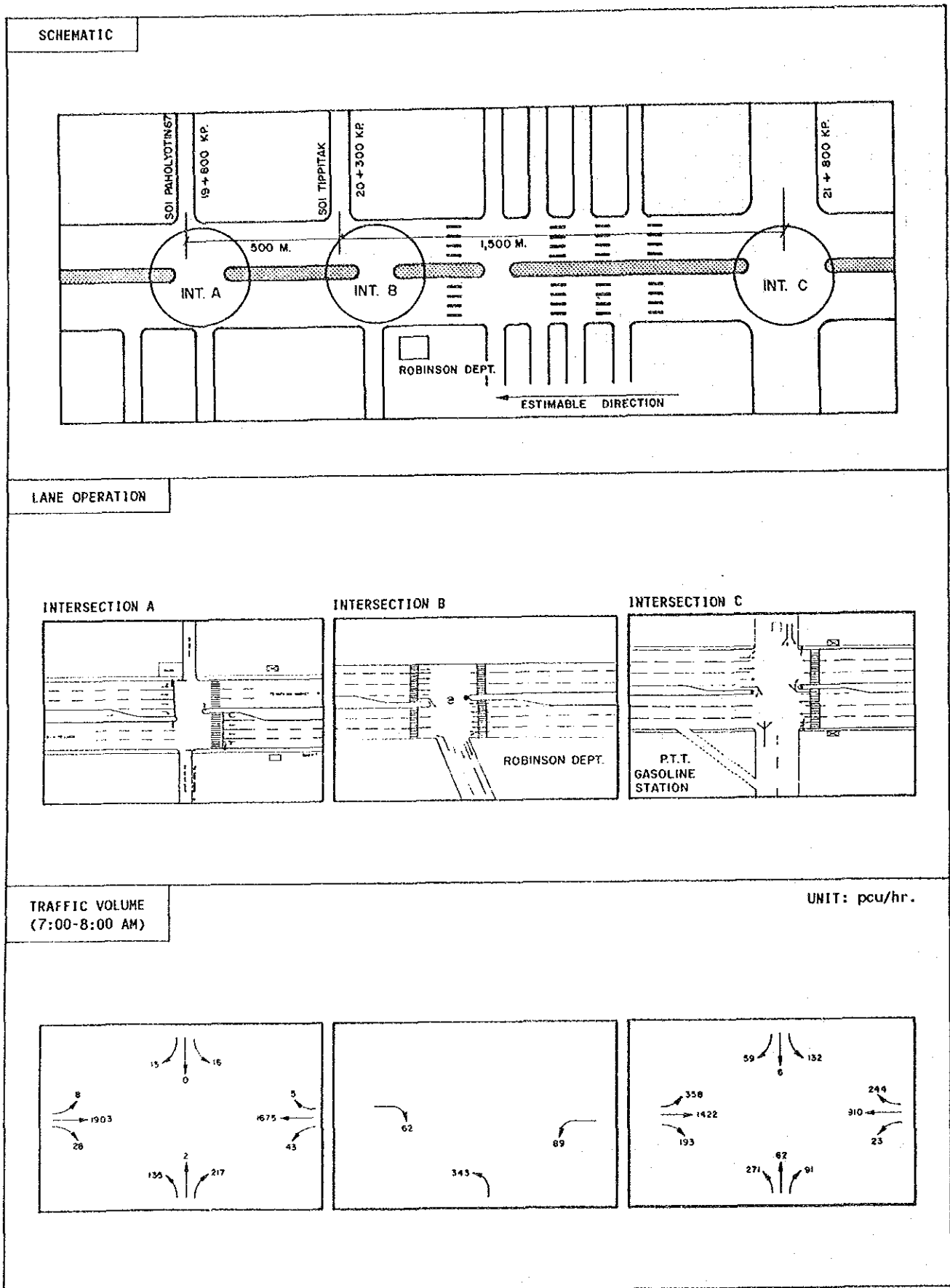


Figure 1 EXISTING TRAFFIC CONDITION

exist in the absence of signals.

- Coordinated signals reduce the through-traffic delay by 25%, as compared with uncoordinated signals.

Table 1 Calculated Delay by Simulation

| | Average travel time (sec./veh.) | Average through traffic flow delay (sec./veh.) |
|---|---------------------------------|--|
| Actual condition (no signed control) | 142 | 0 |
| Signal control (without coordinated control) | 154 | 12 |
| Signal control (with coordinated control) | 151 | 9 |

Appendix 4.1 (1)

Unit Construction Cost

| Item | Unit | Unit Cost (Baht) |
|-------------------------------------|------|------------------|
| GENERAL and EARTHWORKS | | |
| Excavation (Soil) | m3 | 40 |
| Embankment (Soil) | m3 | 200 |
| Removal of Curb and Gutter | m | 60 |
| Removal of Pavement (As) | m2 | 30 |
| (Co) | m2 | 200 |
| PAVEMENT | | |
| Carriageway | | |
| - Asphaltic Concrete (5cm.) | m3 | 2,200 |
| - Reinforced Concrete (23cm.) | m2 | 460 |
| - Sand | m3 | 270 |
| - Base Course | m3 | 450 |
| - Subbase Course | m3 | 380 |
| Shoulder | | |
| - Surface Treatment (Single) | m2 | 30 |
| (Double) | m2 | 60 |
| Sidewalk | m2 | 100 |
| FACILITY for TRAFFIC CONTROL | | |
| Traffic Signal | | |
| - Post | set | 3,600 |
| - Post with Arm | set | 25,000 |
| - Lighting Set | set | 20,000 |
| - Control Board | set | 2,500 |
| - Controller | set | 250,000 |
| Traffic Sign | | |
| - Post | m | 180 |
| - Warning Sign Board | m2 | 2,600 |
| - Regulatory Sign Board | m2 | 2,600 |
| Pavement Marking | | |
| - Reflectrized Thermoplastic | m2 | 350 |
| - Reflectrized Road Paint | m2 | 250 |
| Guard Fence | | |
| - Guard Rail (Veh.) | m | 1,200 |
| - Guard Fence (Ped.) | m | 1,200 |
| Lighting | | |
| - Single | set | 27,000 |
| - Double | set | 38,500 |
| Delineator | set | 800 |
| Road Stud | set | 350 |
| Island | | |
| - Concrete Curb | m | 200 |
| - Filling | m3 | 90 |
| - Sodding | m2 | 20 |
| STRUCTURE | | |
| - Bridge | m2 | 10,000 |
| - Retaining Wall | m | 20,000 |
| - Culvert Box | m | 100,000 |
| LAND ACQUISITION | | |
| | m2 | 10,000 |

Appendix 4.2 (1)

Construction Quantity

(11 locations)

| Item | Unit | Quantity | | | | | | | | | | |
|-------------------------------------|------|----------|-------|------|--------|------|------|------|------|--------|--------|-------|
| | | S-10 | S-15 | S-18 | S-19 | S-22 | S-24 | S-43 | S-44 | S-48.1 | S-48.2 | S-52 |
| GENERAL and EARTHWORKS | | | | | | | | | | | | |
| Excavation (Soil) | m3 | | | | | | | | | | | |
| Embankment (Soil) | m3 | | 47 | | 5,503 | | 378 | 165 | 44 | 53,740 | 508 | 194 |
| Removal of Curb and Gutter | m | | | 365 | | 168 | 60 | 320 | | | | |
| Removal of Pavement (As) | m2 | | | | 14,818 | | | | | | | |
| (Co) | m2 | | | | | | | | 156 | | | |
| PAVEMENT | | | | | | | | | | | | |
| Carriageway | | | | | | | | | | | | |
| - Asphaltic Concrete (5cm.) | m3 | 5 | 25 | | 1,537 | | | 22 | 215 | 622 | | |
| - Reinforced Concrete (23cm.) | m2 | | | 423 | | 715 | 458 | | | | | 90 |
| - Sand | m3 | | | 17 | | 43 | 30 | | | | | 9 |
| - Base Course | m3 | 23 | 946 | | 5,355 | | 43 | 110 | 594 | 3,971 | | 544 |
| - Subbase Course | m3 | 33 | 173 | 25 | 7,012 | 65 | 45 | 154 | 831 | 4,350 | | 14 |
| Shoulder | | | | | | | | | | | | |
| - Surface Treatment (Single) | m2 | | | | | | | | | | | |
| (Double) | m2 | | 3,288 | | 1,388 | | 173 | | | 3,456 | | 2,175 |
| Sidewalk | m2 | | | | 6,375 | | | 138 | | | | |
| FACILITY for TRAFFIC CONTROL | | | | | | | | | | | | |
| Traffic Signal | | | | | | | | | | | | |
| - Post | set | | | | | | | | | | | |
| - Post with Arm | set | | 8 | 10 | 4 | 3 | 6 | 8 | | 8 | 6 | 6 |
| - Lighting Set | set | | 8 | 10 | 8 | 4 | 8 | 8 | | 12 | 8 | 7 |
| - Control Board | set | | 1 | | | | 1 | 1 | | 1 | 1 | 1 |
| - Controller | set | | 1 | | | | 1 | 1 | | 1 | 1 | 1 |
| - Wiring | set | | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 |
| Traffic Sign | | | | | | | | | | | | |
| - Post | m | 8 | 8 | | | 23 | | | 31 | | 8 | |
| - Warning Sign Board | m2 | | 2 | | | | | | | | 2 | |
| - Regulatory Sign Board | m2 | 1 | | | | 3 | | | 8 | | | |
| Pavement Marking | | | | | | | | | | | | |
| - Reflectrized Thermoplastic | m2 | 1,788 | 281 | 360 | 581 | 324 | 231 | 268 | 34 | 219 | 243 | 182 |
| - Reflectrized Road Paint | m2 | 143 | 287 | 162 | 1,034 | 176 | 241 | 124 | 487 | 504 | 73 | 115 |
| Guard Fence | | | | | | | | | | | | |
| - Guard Rail (Veh.) | m | | | | | | | | | 310 | | |
| - Guard Fence (Ped.) | m | | | | | | | | | | | |
| Lighting | | | | | | | | | | | | |
| - Single | set | | 3 | 6 | | | 3 | | | | | 6 |
| - Double | set | | | | | | | | | | | |
| Delineator | set | | | | | | | | 10 | | | |
| Road Stud | set | 92 | | | | | | | 28 | | | |
| Island | | | | | | | | | | | | |
| - Concrete Curb | m | | | 595 | 1,620 | 184 | 55 | 648 | | 860 | 36 | 36 |
| - Filling | m3 | | | 97 | 2,124 | 13 | | 192 | | | 14 | 8 |
| - Sodding | m2 | | | 386 | 8,496 | 52 | | 769 | | | 54 | 30 |
| STRUCTURE | | | | | | | | | | | | |
| - Bridge | m2 | | | | 7,755 | | 173 | | | | | |
| - Retaining wall | m | | | | 620 | | | | | | | |
| - Culvert Box | m | | | | | | | | | 36 | | |
| LAND ACQUISITION | m2 | | | | | | | | | 75 | | |

S-48.1 : Long-term Plan
S-48.2 : Short-term Plan

JICA