### Activity C05 – Determining Splits Using Critical Movement Analysis

**Purpose:** The purpose of this activity is to determine the optimal splits for each intersection using the critical movement analysis method.

**Tasks:**

1. Construct a Critical Movement Analysis form in an Excel spreadsheet using the template included in this activity as your guide.

2. Using the movement volume data collected as part of Activity C04, conduct a critical movement analysis for each intersection, assuming a 100 second cycle length and protected left turns for each turning movement.

3. Prepare a brief analysis summarizing your key findings and important points that you learned.

**Deliverable:** You should turn in an Excel file containing the following:

1. The results of the critical movement analysis with each intersection on a separate tab.

2. A brief analysis summarizing your key findings as well as the important points that you learned from your analysis.

**Critical Movement Analysis form**

| **Step/**  **Description** |  |
| --- | --- |
| Prepare sketch showing movements to be served at intersection and their flow rates |  |
| Prepare sketch showing assigned per lane hourly flow rate to each movement |  |

**Critical Movement Analysis form**

| **Step/**  **Description** |  | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Movement | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| Enter hourly flow rate |  |  |  |  |  |  |  |  |
| Enter hourly flow rate per lane |  |  |  |  |  |  |  |  |
| Compute flow ratio (Step 1) |  |  |  |  |  |  |  |  |
| Determine the flow ratio sums (Step 2) |  | |  | |  | |  | |
| Identify movements with maximum flow ratio sum or maximum flow ratio in each concurrency group (Step 3) |  |  |  |  |  |  |  |  |
| Compute critical v/c ratio (Step 4) |  | | | | | | | |
| Determine intersection status (Step 5) | **X CM** | **Performance** | | | | | | |
| < 0.85 | Intersection is operating under capacity. Excessive delays are not experienced. | | | | | | |
| 0.85 – 0.95 | Intersection is operating near capacity. Higher delays may be expected but continuously increasing queues should not occur. | | | | | | |
| 0.95 – 1.00 | Unstable flow results in wide range of delay. Intersection improvements will be required soon to avoid excessive delays. | | | | | | |
| > 1.00 | Demand exceeds available capacity of intersection. Excessive delays and queuing are anticipated. | | | | | | |