

## 2018 Call for Projects Benefit Cost Analysis Questions (All Investment Categories)

Project: **Traffic Signal Timing Optimization Program**

1. Safety Benefits
  - a **\$15,602,000 (see attached)**
2. Delay Benefits
  - a **\$13,379,000 (see attached)**
3. Emissions Benefits
  - a **14,085 (see attached)**
4. Additional BCA Documentation (Optional)
  - a **N/A**
5. Additional BCA Documentation (Optional)
  - a **A weighted average of each corridor was used in the HGAC Safety, Delay and Emissions Excel Templates. The weighted values used are attached.**
6. Please provide a brief narrative describing the methodology, input data and results. (Optional)

*Using the provided HGAC variables and total program cost of \$625,600, the BCA was calculated based on the equation:*

**Benefit/Cost Analysis Measure(s): [Safety Benefits (\$) + Delay + Emissions Reductions (\$)]/Funding Requested**

**Total Benefits: \$28,995,085**

**Funding Requested: \$500,480**

**B/C = 57.93**

## COST ESTIMATE

### Traffic Signal Timing Optimization Program (TSTOP) (City of Bellaire)

DESCRIPTION	PRICE	No. INTERSECTIONS or CORRIDORS	FREQUENCY OVER 10 YEAR PERIOD	TOTAL
Traffic Counts	\$ 750.00	14	5	\$ 52,500.00
Synchro Model Set Up and Calibration	\$ 4,150.00	14	1	\$ 58,100.00
Synchro Model Update	\$ 3,500.00	14	5	\$ 245,000.00
Travel Time Runs (Bellaire, Bissonnet, S. Rice, Newcastle)	\$ 2,500.00	4	5	\$ 50,000.00
Field Implementation	\$ 3,000.00	4	5	\$ 60,000.00
Documentation	\$ 10,000.00	N/A	5	\$ 50,000.00
City Staff Management Expenses	\$ 100.00	N/A	5	\$ 100,000.00
Expenses	\$ 10,000.00	N/A	1	\$ 10,000.00
				\$ 625,600.00
				\$ 625,600.00

HGAC City of Bellaire Data

Project	Length (Miles)	2018 PkPeriod Vol	2018 24Hr Vol	2018 PkPeriod Cap	2025 PkPeriod Vol	2025 24Hr Vol	2025 PkPeriod Cap	2045 PkPeriod Vol	2045 24Hr Vol	2045 PkPeriod Cap	Estimated FFSpd (2018)	Avg Corrdor Spd (2018)	Typical Laneage
Bellaire Blvd, Chimney Rock to Newcastle	1.7	23,927	47,491	35,021	26,135	53,791	35,021	27,986	57,355	35,021	31	16	6
Bissonnet Street, Chimney Rock to Newcastle	2.5	12,419	24,081	21,834	13,171	24,488	21,834	15,259	28,299	21,834	26	15	4
South Rice Avenue, Fournace to Beechnut	2.1	5,013	8,395	21,442	7,146	12,977	21,442	10,011	16,772	21,442	27	21	4
Newcastle, Bissonnet to Beechnut	2.1	2,011	3,526	11,186	1,988	3,429	11,186	2,953	4,775	11,186	26	22	2
Total	8.4	43,370	83,493	89,483	48,439	94,684	89,483	56,209	107,200	89,483			
Weighted Average		10,295	19,758	21,743	11,493	22,276	21,743	13,446	25,416	21,743	27	19	4