**BCA Template Data Methodology**

1. ***Delay – Benefits- Template***
   1. **Inputs**
      1. Project Identification
         1. Project Title: Hamblen Road
         2. County: Harris
         3. Facility Type: Scroll Down Menu (Non-Freeway)
         4. Street Name: Hamblen Road
         5. Limits (From): Loop 494
         6. Limits (To): Laurel Springs Lane
         7. Length (in Miles): Estimated 0.64 Miles measuring from Laurel Springs Lane to Sorters McClellan Road along Hamblen Road and Loop 494.
         8. Application ID Number: 218
         9. Sponsor ID Number (CSJ): n/a
      2. Proposed Improvements Information
         1. Year Open to Traffic (Must be more or equal than 2021): 2025
         2. Type of Improvement: Scroll Down Menu (Adding New Lanes and Roads: The Hamblen Road Project consist of a reconstruction from a two-lane undivided roadway to a four-lane urban roadway. It would also re-align Hamblen Road to tie directly to Sorters-McClellan Road.)
         3. Service Life (years): 20 Years – project will be constructed for at least a 2045 Design Year
      3. Daily Travel Demand:
         1. **2018 ADT: 11,243 vpd**– ADT from the year 2016 was obtained from TxDOT Traffic Count Database System (2016 ADT: 10,916 vpd). A growth factor of 1.5% per year was used to grow the ADT from 2016 to 2018.
         2. Estimated Free Flow Speed before improvement (from HGAC model data request)
         3. Average Peak Period Corridor Speed before improvement (from HGAC model data request)
         4. 2018 Peak Period Roadway Capacity (from HGAC model data request)
         5. Estimated 2025 Peak Period Traffic Volume (from HGAC model data request)
         6. 2025 Peak Period Roadway Capacity (from HGAC model data request)
         7. Estimated 2045 Peak Period Traffic Volume (from HGAC model data request)
         8. 2045 Peak Period Roadway Capacity (from HGAC model data request)
2. ***Intersection – Improvements - Emissions – Benefits- Template***

***Folder “Intersection-Improvements-Emissions-Benefits Calculations.zip”***

* 1. **Inputs** 
     1. Project Information
        1. Project Title: Hamblen Road
        2. Application ID Number: 218
        3. Sponsor ID Number (CSJ): n/a
        4. County: Harris
     2. Proposed Improvements Information
        1. Year Open to Traffic (Must be more or equal than 2021): 2025
        2. Type of Improvement: Scroll Down Menu (Intersection Improvement: As part of this project traffic signal modifications, geometric changes and a new approach will be added to the Sorters-McClellan Road / Loop 494 / New Hamblen Road Re-alignment intersection.)
        3. Average Vehicle Delay at Intersection Before Implementation (in hours): 27 hours
        4. Average Vehicle Delay at Intersection After Implementation (in hours): 22.6 hours
           + Calculation spreadsheets and models are contained within **Intersection-Improvement-Emissions-Benefits Calculations.zip**
           + Study area was defined by three affected intersections: Loop 494 / Hamblen Road, Loop 494 / US 59 Entrance Ramp and Loop 494 / Sorters McClellan Road (future Hamblen Road alignment).
           + Traffic counts (from August 29, 2018), geometric conditions, and traffic control for each intersection within the study area were input into the intersection operations traffic model, Synchro Version 10. Synchro follows procedures developed in the Highway Capacity Manual (HCM) 6th Edition.
           + Synchro estimated the delay by approach on the signalized intersection and the total intersection delay for two-way stop-controlled intersections.
           + Synchro files and reports can be find in the **Delay Calculations** folder within **Intersection-Improvement-Emissions-Benefits Calculations.zip**.
           + E**xcel worksheet “A. Delay Calculations Summary”** shows the calculations of the Average Vehicle Delay at Intersection Before and After Implementation.
           + Average delay (hours) was calculated for each peak hour period from 6-9AM and 3-7 PM.
     3. Daily Travel Demand:
        1. Average Daily Peak Period Intersection Traffic Volumes (6-9 AM + 3-7 PM) (2018)
           + Counts from the three study intersections were used to perform this estimate.
           + Calculations provided in **Excel Worksheet “B. Average Daily Peak Period Intersection Traffic Volume”.**
        2. Average Intersection Daily Traffic Volume During Off-Peak Hours –
* Calculations are presented in the **Excel Worksheet “C. Average Intersection Daily Traffic Volume During Off-Peak Hours”.**
* Counts from TxDOT Traffic Count Database System were used to calculate Off Peak and Peak AADT. A rough equivalency between the nearby AADT proportion and the TEV proportion was used to calculate the TEV Off-Peak.
  + - 1. 2018 Peak Traffic Volume at the Intersection
* Calculations are presented in the **Excel Worksheet “D. Estimated 2025 & 2045 Peak Traffic Volumes\_Re-route”** under the tab 2018 PM.
  + - 1. Estimated 2025 Peak Traffic Volume at the Intersection
* Calculations are presented in the **Excel Worksheet “D. Estimated 2025 & 2045 Peak Traffic Volumes\_Re-route”** under the tab 2025 PM.
  + - 1. Estimated 2045 Peak Traffic Volume at the Intersection
* Calculations are presented in the **Excel Worksheet “D. Estimated 2025 & 2045 Peak Traffic Volumes\_Re-route”** under the tab 2045 PM.

1. ***Roadway - Safety – Benefits- Template***
   1. **Inputs**
      1. Project Information
         1. Project Title: Hamblen Road Project
         2. County: Harris
         3. Facility Type: Scroll Down Menu (Non-Freeway)
         4. Street Name: Hamblen Road
         5. Limits (From): Laurel Springs Ln
         6. Limits (To): Loop 494
         7. Length (in Miles): Estimated 0.64 Miles measuring from Laurel Springs Lane to Sorters McClellan Road along Hamblen Road and Loop 494.
         8. Application ID Number: 218
         9. Sponsor ID Number (CSJ): n/a
      2. Proposed Improvements Information
         1. Year Open to Traffic (Must be more or equal than 2021): 2025
         2. Safety Improvement Type: Scroll Down Menu (Grade Separation: The Hamblen Road Project consist of a reconstruction from a two-lane undivided roadway to a four-lane urban roadway with a grade separated railroad crossing allowing uninterrupted access to the surrounding neighborhoods.)
      3. Daily Travel Demand:
         1. **2018 Volume (ADT):** **11,243 vpd**– ADT from the year 2016 was obtained from TxDOT Traffic Count Database System (2016 ADT: 10,916 vpd). A growth factor of 1.5% was used to grow the ADT from 2016 to 2018.
         2. 2018 Peak Period Traffic Volume (from HGAC model data request)
         3. 2018 Peak Period Capacity (from HGAC model data request)
         4. Estimated 2025 Peak Period Traffic Volume (from HGAC model data request)
         5. 2025 Peak Period Capacity (from HGAC model data request
         6. Estimated 2045 Peak Period Traffic Volume (from HGAC model data request)
         7. 2045 Peak Period Capacity (from HGAC model data request)

***HGAC Model Data Request***

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project | 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) |
| Hamblen Road - from Loop 494 to Laurel Springs Ln | 5,948 | 11,645 | 11,015 | 6,306 | 12,336 | 8,443 | 6,571 | 13,105 | 18,443 | 31 | 16 |