PWA CODE FLOW:

1. Define signalized intersections and subtract from total nodes or classify nodes
2. Get all crashes

2b. Classify all nodes as preventable or not and order by node

1. Join unsignalized with only preventable crashes
2. Length check for 3 year period for each node has to be greater than 4.
3. 12 month period check

1. Define signalized intersections and subtract from total nodes or classify nodes

Functions:

* itx\_dict
  + Input
    - No input
  + Function
    - Select all nodeids, masterids, is\_int from node table
  + Output
    - Create dictionary setting all nodeids: none
* sig\_lon\_lat
  + Input
    - No input
  + Function
    - Selects all signal longitude and latitudes from sql controller table
  + Output
    - Data output of all longitudes and latitudes
* lonlat\_to\_geom
  + Input
    - input either list of list [[lon,lat][lon,lat]] or list lon\_lat=[lon,lat] or input lon=lon,lat=lat
  + Function
    - Converts input longitudes and latitudes to geometry
  + Output
    - Geometry representations of all inputted lon,lat
* sig\_to\_itx
  + Input
    - Longitude, latitude, search radius
  + Function
    - Queries nearest signal from input longitude, latitude within search radius
  + Output
    - Nearest intersection nodeid,dist,node\_geom,sig\_geom,sig\_lon\_lat from input signal lon lat
* all\_sigs\_to\_itxs
  + Input
    - List of longitude, latitude & search radius
  + Function
    - Queries nearest signal from input list within search radius
  + Output
    - List of all nearest intersection nodeid,dist,node\_geom,sig\_geom,sig\_lon\_lat from input signal lon lat list

4. Length check for 3 year period for each node has to be greater than 4.

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5. 12 month period check

Functions:

* Fiveplus
  + Input
    - Unsignalized nodes
  + Function
    - Find nodes with at least 5 crashes in latest 3 years.
  + Output
    - Subset of unsignalized nodes
* too\_long
  + Input
    - Unsignalized nodes
  + Function
    - Find nodes with exactly 5 crashes in longer than 365 days.
  + Output
    - Subset of unsignalized nodes
* Verified
  + Input
    - Unsignalized nodes
  + Function
    - Find nodes with 5 or more crashes in less than 365 days.
  + Output
    - Subset of unsignalized nodes
* Check
  + Inputs
    - unsignalized nodes
    - too\_long
    - verified
  + Function
    - Take unsignalized nodes – too\_long – verified
    - Retrieve all crashes in 3 year period for each node
    - Find day difference between crash and 4th preceding crash (5 crash window)
    - Five\_yr = 1 if < 365 days
      * Window = 1 for crash and 4 preceding crashes
  + Output
    - Crashes at nodes with at least one five\_year window with window Boolean
* Verified\_crashes
  + Input
    - Verified subset of unsignalized nodes
  + Function
    - Grab all crashes