

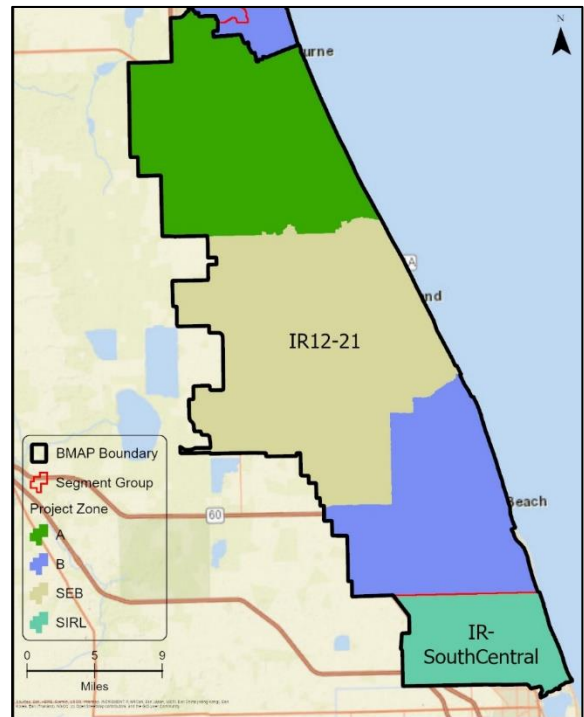
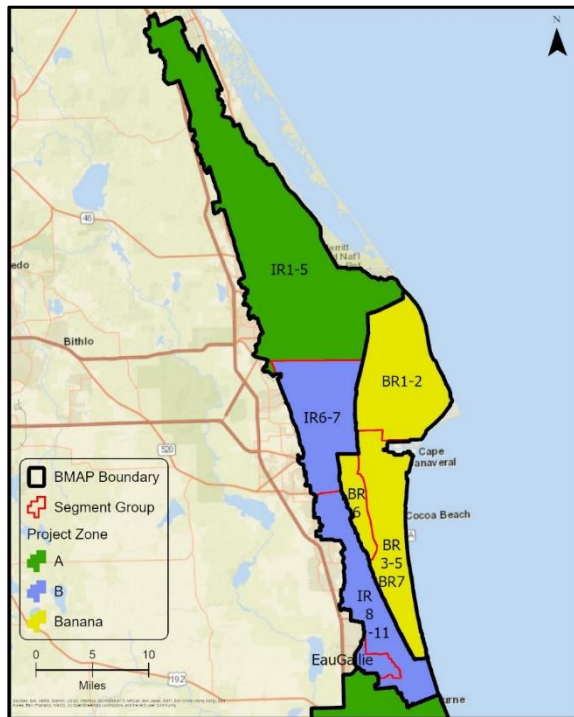
## City of Melbourne

### Banana River Lagoon, Central Indian River Lagoon, and North Indian River Lagoon BMAPs Draft Allocations March 2020

#### Summary:

- Used load estimation tool (LET) developed from Spatial Watershed Iterative Loading (SWIL) Model to calculate total nitrogen (TN) and total phosphorus (TP) starting loads for each total maximum daily load (TMDL) "Segment Group"
- Applied percent reduction from TMDL for each Segment Group (see tables below) to calculate total TN and TP load reduction required for each Segment Group
- Used LET to calculate total anthropogenic starting load in each Segment Group and determine the percent each entity contributed to the total anthropogenic starting load.
- Multiplied the load reduction required in the Segment Group by the percent each entity contributed to the total anthropogenic starting load to calculate each entity's required reductions within each Segment Group.

*Note: Numbers have been rounded for display in this document but were not rounded during the full calculation process.*



#### Required Reductions Per TMDL Segment Group

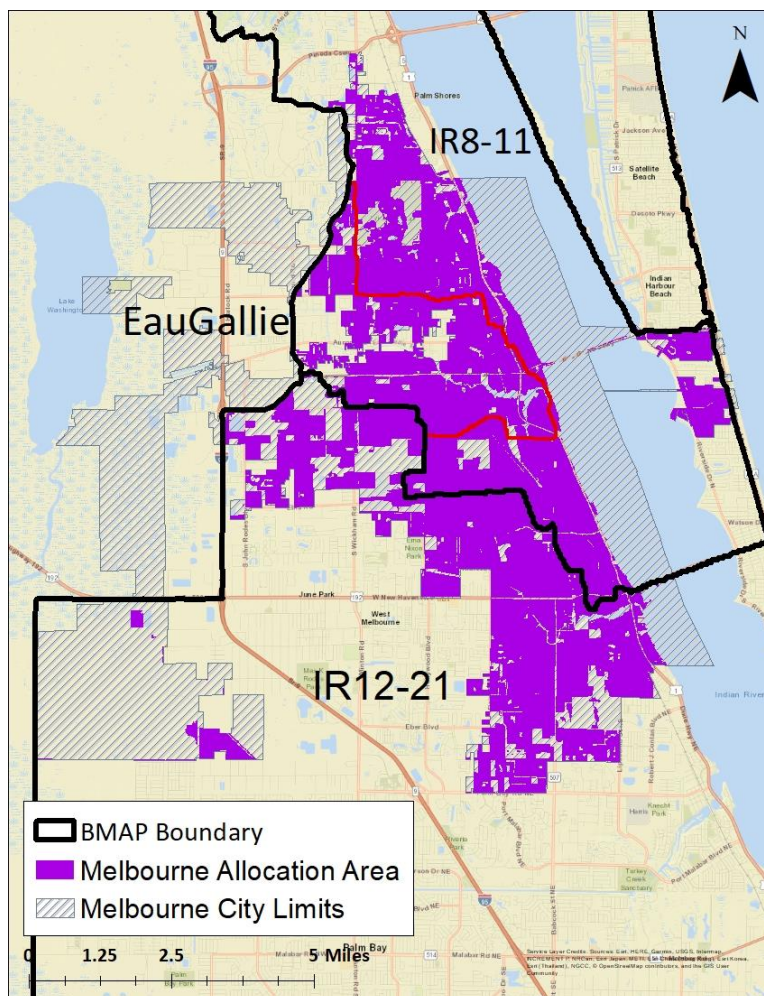
| BMAP         | Project Zone | TMDL Segment Group | % TN TMDL Total Reduction | % TP TMDL Total Reduction |
|--------------|--------------|--------------------|---------------------------|---------------------------|
| Banana River | Banana       | BR1-2              | 67%                       | 72%                       |
| Banana River | Banana       | BR3-5, BR7         | 59%                       | 64%                       |
| Banana River | Banana       | BR6                | 66%                       | 70%                       |
| North IRL    | A            | IR1-5              | 35%                       | 47%                       |
| North IRL    | B            | IR6-7              | 36%                       | 53%                       |
| North IRL    | B            | IR8-11             | 36%                       | 48%                       |
| North IRL    | B            | EauGallie          | 51%                       | 58%                       |
| Central IRL  | A, B, SEB    | IR12-21            | 56%                       | 48%                       |
| Central IRL  | SIRL         | IR-SouthCentral    | 36%                       | 58%                       |

## New Load Calculations from SWIL Model

| BMAP         | Project Zone | TN (lbs/yr)   |                                |            | TP (lbs/yr)   |                                |            |
|--------------|--------------|---------------|--------------------------------|------------|---------------|--------------------------------|------------|
|              |              | Starting Load | Required Reductions (Adjusted) | Allocation | Starting Load | Required Reductions (Adjusted) | Allocation |
| Banana River | Banana       | 36            | 26                             | 10         | 5             | 4                              | 1          |
| <b>Total</b> |              | <b>36</b>     | <b>26</b>                      | <b>10</b>  | <b>5</b>      | <b>4</b>                       | <b>1</b>   |

| BMAP         | Project Zone | TN (lbs/yr)   |                     |               | TP (lbs/yr)   |                     |              |
|--------------|--------------|---------------|---------------------|---------------|---------------|---------------------|--------------|
|              |              | Starting Load | Required Reductions | Allocation    | Starting Load | Required Reductions | Allocation   |
| North IRL    | B            | 76,949        | 35,291              | 41,658        | 11,306        | 6,370               | 4,936        |
| <b>Total</b> |              | <b>76,949</b> | <b>35,291</b>       | <b>41,658</b> | <b>11,306</b> | <b>6,370</b>        | <b>4,936</b> |

| BMAP         | Project Zone | TN (lbs/yr)   |                     |               | TP (lbs/yr)   |                     |              |
|--------------|--------------|---------------|---------------------|---------------|---------------|---------------------|--------------|
|              |              | Starting Load | Required Reductions | Allocation    | Starting Load | Required Reductions | Allocation   |
| Central IRL  | A            | 63,313        | 45,350              | 17,963        | 9,068         | 5,289               | 3,778        |
| <b>Total</b> |              | <b>63,313</b> | <b>45,350</b>       | <b>17,963</b> | <b>9,068</b>  | <b>5,289</b>        | <b>3,778</b> |



## Draft Project Credit Recalculations

Using the LET and geographic information systems (GIS) tools, base loads for the project treatment areas were updated for all projects that require a base load for credit calculations. This allowed the project credits to be recalculated using the same foundation that was used for the updated allocations.

*Current verified and completed projects:*

### *Banana River Lagoon*

| TN (lbs/yr)         |                         |                       | TP (lbs/yr)         |                         |                       |
|---------------------|-------------------------|-----------------------|---------------------|-------------------------|-----------------------|
| Required Reductions | Updated Project Credits | % Reductions Achieved | Required Reductions | Updated Project Credits | % Reductions Achieved |
| 26                  | 0                       | 0%                    | 4                   | 0                       | 0%                    |

### *North Indian River Lagoon Project Zone B*

| TN (lbs/yr)         |                         |                       | TP (lbs/yr)         |                         |                       |
|---------------------|-------------------------|-----------------------|---------------------|-------------------------|-----------------------|
| Required Reductions | Updated Project Credits | % Reductions Achieved | Required Reductions | Updated Project Credits | % Reductions Achieved |
| 35,291              | 12,330                  | 35%                   | 6,370               | 2,766                   | 43%                   |

### *Central Indian River Lagoon Project Zone A*

| TN (lbs/yr)         |                         |                       | TP (lbs/yr)         |                         |                       |
|---------------------|-------------------------|-----------------------|---------------------|-------------------------|-----------------------|
| Required Reductions | Updated Project Credits | % Reductions Achieved | Required Reductions | Updated Project Credits | % Reductions Achieved |
| 45,350              | 4,204                   | 9%                    | 5,289               | 771                     | 15%                   |

These credits represent the City of Melbourne's status as of March 2020 – there will continue to be opportunities to submit new projects and obtain additional credits.

#### Notes:

- There are no projects on record for the Banana Indian River Lagoon BMAP at this time. As the starting load is minimal, it is proposed to add this required reduction to an adjacent BMAP to achieve the required reduction and possible treatment benefit.
- There are 2 projects that overlap with the CIRL boundary that have primary treatment areas in the NIRL and 2 projects that occur in the NIRL boundary that are included in the STAR tables as CIRL projects.
- There were large acreage differences between the shapefiles and project table acres for 21 projects: **MEL-06** in the CIRL; **MEL-12** and **MEL-18** in the NIRL.
- Information provided regarding the reduction benefit does not appear to differ from the permit requirements for projects **MEL-10** and **MEL-12** in the NIRL.
- The treatment area shapefiles for projects **MEL-14** and **MEL-19** in the NIRL appear to be missing from our records.
- The needed media information for 2<sup>nd</sup> Generation Baffle Box projects with media (**MEL-15**, **MEL-16**, and **MEL-18** in the NIRL) appear to be missing from our records.
- There are 22 projects (7 in CIRL and 15 in NIRL) with load reductions listed as "TBD" which can be calculated with the LET or other methods and added to total reductions once additional project information is received.