4.0 Candidate Recharge Areas and Methods

4.1 Target Recharge Area

The further away from the MFL water bodies, the less "influence" recharge may have on augmenting the flows in the LSFIR. The ability for water reaching the Upper Floridan Aquifer (UFA) to contribute to flows in the MFL water bodies was evaluated by the water management districts using the North Florida/Southeast Georgia (NFSEG) groundwater model. Results were provided by the SRWMD in the form of "influence factor" maps (**Figure 4.1**), which could be used to estimate the ratio of augmented flow at the MFL target locations based on the full volume applied to the UFA at a given recharge site. Influence Factors are ratios ranging from 0 to 1, with 1 representing 100 percent of the applied UFA flow reaching the MFL site, and 0 representing none of the applied UFA flow reaching the site. The figures illustrate that proximity to the MFL water bodies is essential to optimizing MFL benefits.

Other considerations:

- **Mutual Benefits**: While some areas predominantly benefit the Santa Fe system, others predominantly benefit the Ichetucknee. **Figure 4.2** illustrates where these influential areas overlap.

  Recharge at the scale proposed is likely to require more than one site. Multiple sites would provide the opportunity to maximize benefit to each site individually or to supplement individually beneficial sites with some mutually beneficial sites within the overlap area.

For comparative purposes during this phase of study, the Partnership designated representative influence factor values within the target recharge area to be used for all candidate alternatives. Though the values within this target recharge area can vary on a site-specific basis, the representative influence factor values provide a reasonable expectation of the benefits expected at each of the two sites.

- **Hydrogeologic Confinement**: The two MFL sites are situated near the Cody Escarpment, a transitional geologic feature that divides a highly impervious soil column to the east from a highly pervious soil column to the west. Land to the east is characterized by a confining, or restricting, clay layer between surficial aquifers and the deeper UFA. Land to the west is unconfined, meaning that water discharged to the surface can infiltrate more freely downward at higher rates. A narrow band of transitional land is marked by intermittent confining layers and is characterized as "semi-confined." Figure 4.2 illustrates that the target recharge area is located principally in the semi-confined area. This suggests that future phases of work should examine site-specific soil features and permeability to identify effective recharge locations and methods.