V. PRESENT WORTH COMPARISONS

A. Comparisons of Present Worth Values of Alternate Plans

The Present Worth of the three plans considered as solutions to deficiencies and problems within the Granby municipal wastewater system are listed hereinafter in ascending order.

	Present Worth
Plan A – Add Detention Basin, replace UV system, Upgrade Primary Lift Station, and Correct I/I	\$9,065,692
Plan B – Plan A Improvements, Plus Change SBR to Extended Aeration with Clarifiers	\$9,220,841
Plan C – Plan A Improvements, Plus Add Irrigation System for Land Application of Treated Effluent	\$16,295,157

The Plan with the least present worth reflects the least sum of estimated initial and future expenditures needed for a wastewater system improvement project. Plan A carries the least present worth of the alternate plans considered, although the difference in present worth between Plan A and Plan B is considered minor.

B. Non-Cost Factors Associated with Plans

Plan A allows the procedures for operating the plant to continue unchanged except for controlling the volume of wastewater entering the plant during both peak and normal conditions. With the addition of the proposed detention basin, the treatment plant could be shut down for a short period during low flow condition to enable maintenance and repair activities. Under Plan B, operating procedures would change to account for continuous flow through the plant and would reduce the level of detailed operator attention require by the SBR process. Under Plan C, an additional and separate operation would be required for managing the irrigation system.

Plan B, changing to the extended aeration process, eliminates the dependency on the computerized controls inherent with the SBR process, and reduces the chance for treatment failure because of electronic component failure. Further, the hydraulic capacity of the physical plant increases under Plan B, a factor deemed paramount considering the level of flow during periods of precipitation.

The primary benefit associated with Plan C is the change from discharging of treated wastewater to waters of the state, and the associated reduction in risk of discharge violations. Part of the additional cost of operation might be recouped through sale of crops from the irrigated area, however finding suitable contiguous areas of the size needed for irrigation will present a challenge. Geological characteristics of a site would need to be addressed in locating and constructing the storage basin, although storing treated wastewater presents less risk of groundwater pollution than treating raw wastewater in facultative lagoons.

Other factors justifying the continued use of the existing physical plant are;

- The existing plant has reserve organic load capacity sufficient to carry the anticipated growth of the community during the next twenty years.
- The existing plant, operating in either the SBR or extended aeration process can
 produce an effluent, under average flow conditions, with pollutant levels well within the
 limits stated in the current discharge permit.
- Concrete structures at the plant and lift station have not discernibly deteriorated and may be expected to function for an additional fifty years.
- Both the SBR process and the extended aeration process, through creation of an anoxic state in the aeration basins mixed liquor, can serve to reduce the total nitrogen in the plant effluent.
- Should limits on total phosphorus be included in the discharge permit, the addition of chemicals into the treatment process for removal of these compounds may be easily implemented.
- Total replacement of the two existing lift station pumping units with new pumps is not required if additional pumps of lower capacity and a parallel force main are installed. Further, a reserve 550 gpm pump and motor is currently on hand.