- ! Chapter 9 should be revised to insure consistent and transparent enforcement and eliminate unwarranted variances (§ 9.02.A.2). Section 9.02.A.2 allows the city engineer to grant site-specific variances that result in annual increases to 100-year flood plain. Site specific plans should be considered openly and have stringent requirements
- ! Chapter 9's standards for evaluating the storm water impacts should be revised to insure that the city's storm sewers provide not less than a 2-year level of service and that all development is fully mitigated.
 - Encourage use of raised, open pier and beam foundations (§9.04.0): Revise the definition of "impervious surface" to eliminate raised, open pier and beam foundations that allow water to flow under and through.
 - Raise and Reduce Number of Run-Off Coefficients (§9.05.B.3): Chapter 9 should be revised to reflect higher run off coefficients because drainage from all types of new development will have higher flow than from existing development. And now that high density development can occur throughout the city, the number of run-off coefficients should be reduced to two, e.g., (e.g., 75% for residential development and 100% for roadways).
 - **Require new development or redevelopment to be serviced by properly sized storm sewers (§9.05.C.2):** This section provides that the Design Rainfall Event for sizing storm sewers in newly developed areas will be at minimum a 2-year rainfall event. The storm sewers in ca. 80% of the city are known to provide less than the minimum 2-year level of service prescribed in this section. When drainage from new development and/or redevelopment is directed to public right of way (ROW), Chapter 9 should require infrastructure to receive and convey water into the storm sewer system and not redirect water to neighboring properties as occurs when the storm sewers are deficient. Section 9.05.C.2 should be revised to provide that new development and/or redevelopment shall only be permitted if the storm sewers are or will be sized to provide the minimum 2-year level of service upon completion.
 - **Protect Existing Development from increased risk of flooding (§9.05.D.5):** Roadways are designed to capture water in excess of two-year events up to 100-year events, but emergency routes should not be allowed to flood even in 100-year events. This section should be revised accordingly.
 - Preserve drainage capacity when replacing earthen ditches with concrete conduit (§9.05.E and F.2.d): Replacement of earthen ditches with conduit should not reduce existing drainage capacity. These sections should be revised to insure that replacement of earthen ditches with conduit does not reduce capacity or decrease conveyance.
- ! Chapter 9 should be revised to eliminate "grandfathering" and require full mitigation for all new development.
 - "What is Grandfathering?" Chapter 9 allows property that either has impervious cover or had impervious cover in the past to be fully redeveloped without any on-site mitigation for storm water impact. Exemptions and/or reductions in detention and drainage requirements for redevelopment on such properties is referred to as "grandfathering." "Grandfathering" needs to end because it shifts the cost of flood damage and reduction from developers to neighboring landowners, public agencies, and taxpayers.
 - **Detention (§9.05.H.3.b-c):** Chapter 9 requires detention based on the percentage of impervious cover that varies depending on property size. Use of equations based on property size to determine the amount of detention are difficult and expensive to police. The best action is to eliminate the equations and require 0.5 acre-feet per acre for all types of new development and redevelopment.
 - **Private Storm Sewers (§9.05.H.3.g):** This section provides that private storm sewers may be used for detention, but Chapter 9 does not the private storm sewers do not need to be recorded and therefore cannot be tracked. Chapter 9 should be revised to require maintenance of public records showing the location and capacity of detention on private property so that capacity is not lost during redevelopment.
- ! Chapter 9 should be reorganized and harmonized with relevant chapters of the City Code of Ordinances.
 - **Chapter 42:** Standards for storm water detention and drainage on private property should be moved out of Chapter 9 of the Infrastructure Design Manual and into Chapter 42 of the City Code of Ordinances to insure that (1) development standards are approved by City Council; (2) variance requests will be considered and approved the in open meetings, e.g., by the Planning Commission; and (3) variance requests will be subject to public comment.