1.1 GOAL[1] : Prepare, at the earliest possible date, and maintain, a Lafayette Parish Comprehensive Drainage/Storm Water Plan [2].

Objective [3]

1.1.1. Complete a digital one foot contour elevation map of the parish.

Potential Guidelines/Strategy [4]

1.1.1.1 Organize a Drainage/Storm Water coordinating team of local agencies directly impacted by parish drainage/storm water needs, consisting of not more than seven people.

1.1.1.2 Prepare a scope of work to complete a digital one foot contour and elevation map of the parish.

1.1.1.3 Secure funding through federal/state/local resources within six months of December 2002.

1.1.1.4 LCG contracts with consultants not later than March 2002 for LIDAR 6' grid of parish and one foot contours with supporting elevation data.

Objective

1.1.2 Complete a digital Hydrologic Model of the parish including flow sources and results.

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[1] A goal is a general statement of a future condition which is considered desirable for the community; it is an end towards which actions are aimed.

[2] The Steering Committee, after due consideration of reports from its Drainage Subcommittee and staff, proposed in Recommendation 16 that: ▪The absolute urgent need for a comprehensive drainage plan for the parish at the earliest possible date•. The CPIC Drainage Subcommittee Response reviewed the original proposal and modified such that: ▪Due to its urgent need as a priority for the comprehensive plan, a comprehensive drainage and stormwater plan must be completed as soon as possible•.

[3] An objective is a statement of a measurable activity to be accomplished in the pursuit of a goal; it refers to some specific aspiration which is reasonably attainable.

[4] A potential guideline is a suggested proposal to do something that relates directly to accomplishing the objective; it identifies the how, where, and amount which may be done. As per CPIC action on September 16, 2001, it was determined that CPIC as a body would suggest ▪Potential Guidelines/Strategy• as opposed to mandating ▪strategies• when assigning Comprehensive Plan initiatives for stakeholder implementation.

Potential Guidelines/Strategy

1.1.2.1 Drainage/Storm Water Coordinating Team prepares a scope of work not later than July 2002.

1.1.2.2 Funding resources are identified to complete the Hydraulic Model of the Parish.

1.1.2.3 Contract is signed not later than September 2002 with consultant to complete a digital Hydraulic Model of the Parish including flow sources and results.

Objective

1.1.3 Complete a digital Retention/Detention Model of the parish.

Potential Guidelines/Strategy

1.1.3.1 Drainage/Storm Water Coordinating Team prepares a scope of work not later than March 2003.

1.1.3.2 Funding resources are identified to complete the digital Retention/Detention Model of the parish.

1.1.3.3 Contract is signed not later than May 2003 with consultants to complete a Retention/Detention Model of the parish.

Objective

1.1.4 Complete a Water Quality Analysis for the parish.

Potential Guidelines/Strategy

1.1.4.1 Drainage/Storm Water Coordinating Team prepares a scope of work not later than June 2003.

1.1.4.2 Funding resources are identified to complete the digital Water Quality Analysis for the parish.

1.1.4.3 Contract is signed not later than September 2003 with consultants to complete a Water Quality Analysis for the parish.

Objective

1.1.5 Complete a Water Resource Management Plan for the parish.

Potential Guidelines/Strategy

1.1.5.1 Drainage/Storm Water Coordinating Team prepares a scope of work not later than December 2003.

1.1.5.2 Funding resources are identified to complete the digital Water Resource Management Plan for the parish.

1.1.5.3 Contract is signed not later than February 2004 with consultants to complete a Water Resource Management Plan for the parish.

Objective

1.1.6 The Lead Agency/Dept. should be selected not later than February 2002 to develop, manage, and maintain Storm Water Plan and fund related implementation throughout the parish.

Potential Guidelines/Strategy

1.1.6.1 Select one of the following potential entities for Storm Water Plan implementation:

1) Lafayette Consolidated Government (including intergovernmental agreements with Broussard, Carencro, Duson, Scott, and Youngsville)

2) Lafayette Utilities System (LUS)

3) Lafayette Council of Governments (a nonprofit corporation coordinating among local elected officials through intergovernmental agreements).

4) Form a Lafayette Parish Storm Water District

5) Bayou Vermilion District

1.1.6.2 Identify and approve ■Storm Water Management• as public utility service and apply monthly fees to all structures throughout the parish based on an impervious surface formula.

1.1.6.3 Selected Storm Water Agency assumes responsibility for parish stormwater plan, management and implementation not later than June 2002.

1.1.6.4 Selected Storm Water Agency identifies revenue resources to support implementation of Drainage/Storm Water Plan.

Objective

1.1.7. Prepare a five-year update of the Comprehensive Drainage Plan beginning in 2010 and every five years thereafter.

Potential Guidelines/Strategy

1.1.7.1 Parish Storm Water Agency should update the Lafayette Parish Comprehensive Drainage/Storm Water Plan in five year increments beginning in 2010.

1.1.7.2 The parish Drainage/Storm Water Plan should be coordinated and compatible with the adopted Comprehensive Plan for Lafayette Parish: LINC.

1.1.7.3 Updates to the Drainage/Storm Water Plan should be funded by the parish Storm Water Agency.

1.2 GOAL: Lafayette Parish should join the Community Rating System (CRS) sponsored by the National Flood Insurance Program as soon as possible.[5]

Objective

1.2.1 Lafayette City-Parish Consolidated Government and the municipalities of Broussard, Carencro, Duson, Scott and Youngsville should join the Community Rating System (CRS) in the year 2003, at the latest.

Potential Guidelines/Strategy

[5] The Steering Committee, after due consideration of reports from its Drainage Subcommittee and staff, proposed in Recommendation 3 that: ■ Lafayette Parish should join the Community Rating System (CRS) sponsored by the National Flood Insurance Program as soon as possible• . The CPIC Drainage Subcommittee responded that ■Lafayette Parish should join the Community Rating System (CRS) sponsored by the National Flood Insurance Program and aggressively participate in the benefits of its grant programs and insurance rate reduction opportunities.•

1.2.1.1 A planning grant application is to be prepared by the Traffic and Transportation Department Planning Division to complete a Comprehensive Hazard Plan for Lafayette Parish and its municipalities. The Plan includes a CRS Flood Prevention Plan, as well as other hazard plans such as hurricane, tornado, oil spill, train wreck spills and other hazards determined to be significant. This application is to be submitted not later than June 2002.

1.2.1.2 If the planning grant is successful and awarded, the Comprehensive Hazard Plan is prepared and completed by August 2003. The Plan preparation shall be coordinated by the Planning Division of the Department of Traffic and Transportation working in conjunction with the Public Works Department and the Office of Emergency Preparedness.

1.2.1.3 If the planning grant application is not successful, then the CRS Plan preparation proceeds for the Lafayette Consolidated Government and parish municipalities by the Traffic and Transportation Department Planning Division and proposed to be completed by December 2003.

1.2.1.4 The CRS program is coordinated among the local governments by one of the following agencies/departments:

1) The Lafayette Council of Governments

2) The designated Storm Water Management Agency for the Parish.

3) A proposed Parish Drainage District

4) The Codes Division of the LCG Department of Planning, Zoning and Codes in cooperation with the Flood Plain Administrators for the municipalities of Broussard, Carencro, Duson, Scott and Youngsville.

5) The Public Works Department of Lafayette Consolidated Government in coordination with the municipalities of Broussard, Carencro, Duson, Scott and Youngsville.

6) The proposed Citizen Drainage Advisory Committee through the City-Parish Planning Commission.

Objective

1.2.2 Achieve 1,000 CRS Credit Points (by performing program activities) for each governmental jurisdiction within the first year of participation.

Potential Guidelines/Strategy

1.2.2.1 Public Information Activities to include elevation certificates, map information, outreach projects, hazard disclosure, flood protection library, and flood protection assistance.

1.2.2.2 Mapping and Regulatory Activities to include additional flood data, open space preservation, higher regulatory standards, flood data maintenance, and storm water management.

1.2.2.3 Flood Damage Reduction Activities to include Flood Plain Management Plan, acquisition, relocation and/or retrofitting of habitually flooding structures as well as drainage system maintenance.

Objective

1.2.3 Achieve 1,500 CRS Credit Points (by performing program activities) for each governmental jurisdiction within the second year of participation

Potential Guidelines/Strategy

1.2.3.1 Public Information Activities to include elevation certificates, map information, outreach projects, hazard disclosure, flood protection library, and flood protection assistance.

1.2.3.2 Mapping and Regulatory Activities to include additional flood data, open space preservation, higher regulatory standards, flood data maintenance, and storm water management.

1.2.3.3 Flood Damage Reduction Activities to include Flood Plain Management Plan, acquisition, relocation and/or retrofitting of habitually flooding structures as well as drainage system maintenance.

Objective

1.2.4 Achieve 2,000 CRS Credit Points (by performing program activities) for each governmental jurisdiction within the third year of participation.

Potential Guidelines/Strategy

1.2.4.1 Public Information Activities to include elevation certificates, map information, outreach projects, hazard disclosure, flood protection library, and flood protection assistance.

1.2.4.2 Mapping and Regulatory Activities to include additional flood data, open space preservation, higher regulatory standards, flood data maintenance, and storm water management.

1.2.4.3 Flood Damage Reduction Activities to include Flood Plain Management Plan, acquisition, relocation and/or retrofitting of habitually flooding structures as well as drainage system maintenance.

Objective

1.2.5. Achieve a 20% reduction on premiums paid by parish and municipal holders of flood insurance policies through the National Flood Insurance Program by the third year of participation in the CRS program.

Potential Guidelines/Strategy

1.2.5.1 Acquisition and relocation of repetitive loss structures should be focused and coordinated with open space and storm water management.

1.2.5.2 Improved GIS flood data maintenance.

1.3 GOAL: Establish a permanent Citizen Drainage/Storm Water Advisory Committee answerable to the City-Parish Planning Commission [6].

Objective

1.3.1 The City-Parish Planning Commission prepares rules of policy and procedure for the establishment of the Citizen Drainage/Storm Water Advisory Committee.

Potential Guidelines/Strategy

[6] The Steering Committee, after due consideration fo reports from its Drainage Subcommittee, proposed in Recommendation No.1 that LCG should ▪Establish a permanent Citizen Drainage Advisory Committee answerable to the City-Parish Planning Commission.• The CPIC Drainage Subcommittee responded that LCG should ▪Establish a permanent Citizen Drainage/Storm Water Advisory Committee answerable to the City-Parish Planning Commission•.

1.3.1.1 The primary purpose of this committee is to recommend to the Commission on issues directly affecting the review, adoption and/or amendments to the Drainage/Storm Water Element of the Comprehensive Plan.

1.3.1.2 The secondary purpose of this committee is to recommend to the City-Parish Planning Commission on related drainage/storm water matters as requested by the Commission.

1.3.1.3 The tertiary purpose of the committee is to advise the City-Parish Planning Commission on drainage and storm water items that the committee, as citizens of the community, deem appropriate.

1.3.1.4 The actions of the committee are strictly advisory in nature and are to be directed solely to the Planning Commission.

1.3.1.5 The committee may research, interview, study, analyze, discuss, and otherwise deliberate on drainage/storm water issues affecting Lafayette Parish and its municipalities.

1.3.1.6 The committee may not transmit formal communication on opinions or recommendations on any matter other than that directed to the Planning Commission.

1.3.1.7 Committee members are appointed and serve at the pleasure of the sitting Planning Commission.

1.3.1.8 The Citizen Drainage/Storm Water Advisory Committee should consist of no more than five individuals who may or may not be members of the Planning Commission.

Objective

1.3.2 The Citizen Drainage/Storm Water Advisory Committee is formally established by the City-Parish Planning Commission.

Potential Guidelines/Strategy

1.3.2.1 Resolution is adopted establishing the City-Parish Planning Commission's Citizen Drainage/Storm Water Advisory Committee.

1.3.2.2 The committee membership is appointed not later than August 2002.

1.3.2.3 The administration of the Citizen Drainage/Storm Water Advisory Committee shall be provided by the Planning Division of the Department of Traffic and Transportation and the Department of Public Works.

The Comprehensive Plan Implementation Committee has approved, recommends and submits the above Implementation Strategies as an initial priority need for the Drainage/Storm Water Element of the Comprehensive Plan.

1.4 GOAL: Prepare a method of ranking drainage projects which prioritizes expenditures based on objective ranked criteria. [7]

Objective

1.4.1 The "Lead Agency" [as described in Potential Guidelines/Strategy 1.1.6.1] is established and financed.

Objective

1.4.2 The Lead Agency establishes a mathematical formula which ranks projects based on reduction of flooding within each drainage area by evaluating market value of real estate/or structures and giving priority to protecting residential structures as a first priority; then business structures as a second priority; streets and roadways as a third priority; and, finally undeveloped land as a fourth priority.

Potential Guidelines/Strategy

1.4.2.1 The Lead Agency determines the method presently in use by LCG and other local governmental jurisdictions (within Lafayette Parish) to prioritize projects.

1.4.2.2 The Lead Agency evaluates current methods of drainage project prioritization by:

1) Examining methods of defining the boundaries of a targeted area;

2) Examining methods of evaluating a market value of residential and business structures, streets, as well as undeveloped land within a targeted drainage area.

[7] Recommendation No. 2 from the Steering Committee, after due consideration from its Drainage Subcommittee, stated "... members ranked the term "flooding problems" for priority concerns and ... recommend solutions." Ranked in terms of priority were "(1st) Residential Units, (2nd) Business Buildings, (3rd) Street/Roadways and (4th) Land (Vacant, Agricultural, Yard)".

3) Examining methods of ranking the market value of (a)residential structures to (b)business structures to (c)streets to (d)undeveloped land within a targeted drainage area.

1.4.2.3 The Lead Agency modifies the current method of evaluating and ranking the priority of drainage projects so that the following relationships are true:

1) The definition of a project rating percentage factor is defined as:

A = Rating Percentage 1
B = Rating Percentage 2
C = Rating Percentage 3
D = Rating Percentage 4

2) The definition of ranking relationships between project rating percentage factors is:

Rating Percentage 4 < Rating Percentage 3 <
Rating Percentage 2 < Rating Percentage 1

3) The project rating percentages are to be determined by the stakeholders [8].

4) A project rating percentage factor is not greater than 100.00%.

5) A drainage area is defined as the enclosed geographic area within a continuous boundary within which the stormwater flows. Typically, stormwater travels through a critical passage or point at which the stormwater is being presently impeded and thus causes flooding within the drainage area.

6) The critical passage or impeded point is the structure that should be made larger or altered in order to prevent localized flooding.

7) The component values evaluated within a project target area are defined as:

[8] As used in the Comprehensive Drainage/Storm Water Plan, the Lead Agency [as described in Section 1.1.6.1] is different from the stakeholders. The Lead Agency is the local governmental group which has the primary responsibility to implement the drainage/stormwater plan. The stakeholders are generally composed not only of members from the Lead Agency, but also other additional participants in the drainage/stormwater plan. These other participants have a stake in the success of the plan and as such participate in the formulation of policy and implementation of strategies. When a particular group of stakeholders are identified as significant, then that group is particularly identified as in Section 1.5.1.3 when reference is made to the Department of Traffic and Transportation stakeholders.

RES Value= the total market value of residential structures
BUS Value = the total market value of business structures
RD Value = the estimated present value of total construction costs of streets and roadways flooding during a 100-Year Flood[9]
UNDEV Value = the total market value of undeveloped land within a project target area

8) The total evaluated value (TEV) of all structures within a project target area is defined as:

TEV = (A x RES Value) + (B x BUS Value) + (C x RD Value) + (D x UNDEV Value)

1.5 GOAL: Define existing and future flooding problems so that the effects of the Comprehensive Drainage/Storm Water Plan can be measured. [10]

Objective

1.5.1 The MPO/Planning Division creates an inventory of residential and business structures, undeveloped land as well as roadways that have flooded on or before July 4, 2000, and thus creates a data set which is defined as ■Existing.• ■Future• flooding problems are defined as those occurring after this date.

Potential Guidelines/Strategy

1.5.1.1 The Comprehensive Planning/MPO Division in conjunction with Federal Emergency Administration (FEMA) identifies and digitally maps the 100-Year Flood Zone within Lafayette Parish.

[9] The definition of a 100 Year Flood used in this drainage/stormwater plan is the one used by the Federal Emergency Management Agency (FEMA). According to the Federal Emergency Agency , "The term "100-year flood" is misleading. It is not the flood that will occur once every 100 years. Rather, it is the flood elevation that has a 1- percent chance of being equaled or exceeded each year. Thus, the 100-year flood could occur more than once in a relatively short period of time. The 100-year flood, which is the standard used by most Federal and state agencies, is used by the NFIP as the standard for floodplain management and to determine the need for flood insurance." See the world wide web internet site as configured on March 1, 2001: http://www.fema.gov/mit/tsd/FQ_fld03.htm

[10] The original LINC Steering Committee stated in Recommendation 2 that two terms were used to classify flooding problems. Existing flooding problems are those which occur ■... assuming there would be no further development in the parish (roads, houses, businesses, industry, etc)•. In distinction, future flooding problems are those which occur ■... assuming new development in the parish will continue (with new roads, houses, businesses, and industry)•. The committee was meeting then in the Summer of 2000 so that the approximate mid-point in the summer, (i.e. July 4th) was established as the benchmark between existing and future problems.

1.5.1.2 The Comprehensive Planning/MPO Division in conjunction with Federal Emergency Administration (FEMA) identifies and digitally maps ▪multiple flooding event residential structures• for which NFIP claims of more than $1,000 have been filed more than once and for which more than one claim was made on or prior to the middle of 2000 on or about July 4.

1.5.1.3 Stakeholders in the Department of Transportation and Development (DTT) inventory roadways susceptible to flooding during 100-year Flood on or prior the middle of 2000 on or about July 4.

1.5.1.4 Stakeholders in the Department of Transportation and Development (DTT) inventory approved roadways which are designed to function as retention and detention facilities during periods of high rainfall. These roadways were built or approved by other local governmental jurisdictions, LCG itself, or one of its predecessors, particularly the Lafayette Parish Police Jury, the Lafayette Parish Government, and the City of Lafayette.

1.5.1.5 The CRS program stakeholders [as developed in Section 1.2.1.4] request the release of information from the LCG Request For Services System pertaining to flooding and drainage. The information requested is: (1) The name and address of the person requesting services; (2) The date of the request; and, (3) A description of the drainage problem.

1.5.1.6 The information and maps from the Request for Services are integrated with the information received from FEMA information on habitually flooded structures (produced in Potential Guidelines/Strategy 1.5.1.1) and with the information developed by Department of Transportation and Development Stakeholders on roadways susceptible to flooding during a 100-Year Flood (as described above in Potential Guidelines/Strategy 1.5.1.4).

1.6 GOAL: Mitigate existing, as well as future flooding, in residential structures, business structures, roadways not designed to act as retention and detention, as well as undeveloped land. Priority in conducting analysis and funding projects should be given to residential structures first, then business structures, then to roadways not designed to function as retention and detention facilities, and finally to undeveloped land. [11]

[11] Goal 1.6 is taken from 8 separate recommendations: 5, 6, 7, 8 , 9, 10, 11, and 12 as described in the chart below. Recommendations 5, 6, 7, and 8 deal with existing, repeat flooding while 9, 10, 11, and 12 deal with future, first-time flooding. Likewise, Recommendations 5 and 9 deal with residential structural flooding issues.

Objective

1.6.1 The Lead Agency [identified in Objective 1.4.1] performs a drainage analysis using the formulas described [in Goal 1.4]. [12]

Potential Guidelines/Strategy

1.6.1.1 Utilizing the flood event maps and databases [developed in Goal 1.5], the Lead Agency identifies the drainage areas in which clusters of flood events have occurred including residential and business structures, as well as undeveloped land or roadways not designed to function as retention or detention facilities.

1.6.1.2 The Lead Agency evaluates all of the drainage areas identified in the previous Potential Guidelines/Strategy using the criteria described [in Objective 1.4.1].

1.6.1.3 The Lead Agency ranks the drainage areas identified in the previous Potential Guidelines/Strategy using the Total Evaluated Value (TEV) [as defined in Potential Guidelines/Strategy 1.4.1.4]

Recommendations 6 and 10 deal with business structures flooding issues. Recommendations 7 and 11 deal with roadway flooding issues. Recommendations 8 and 12 deal with undeveloped lands. Many of the requirements are analogous as well and are described in subsequent footnotes.

Time Period	*Residential*	*Business*	*Roadway*	*Undeveloped*
Existing	Recommend. 5	Recommend. 6	Recommend. 7	Recommend. 8
Future	Recommend. 9	Recommend. 10	Recommend. 11	Recommend. 12

[12] According to the Steering Committee Recommendations 5, 6, 8 , 9 10, and 12, ▪An LCG drainage analysis should be conducted for existing and future flooding problems for residential and commercial structures as well as undeveloped land.• Recommendations 7 and 11 state that roadways ▪if not designed for retention/detention facilities, (then) a LCG drainage analysis should be conducted.•

1.6.1.4 The Lead Agency identifies the causes[13] of flooding within each drainage area in the above Potential Guidelines/Strategy as either localized or systemic. [14]

Flooding is localized when the capacity of the drainage area (as defined in Potential Guidelines/Strategy 1.4.1.4.) is not fully utilized in 100-Year Flood [15] such that some portions of the drainage facilities are operating at less than full capacity and other portions of the drainage facilities are operating at beyond their capacity. Typically, localized flooding also occurs in conjunction with an impediment which reduces capacity in the drainage facilities. When the impediment is cleared or capacity is increased at single or multiple points, then the capacity of the drainage facilities is not overwhelmed with more stormwater than can be handled.

Systemic flooding on the other hand occurs when the capacity of the drainage facilities in a drainage area during a 100-Year Flood is overwhelmed. The solution to systemic flooding is not an increase in capacity at single or multiple points along a drainage facility, rather, an increase in capacity along the entire drainage facility within a drainage area during a 100-Year Flood.

Localized flooding tends to be the result of private efforts while systemic flooding tends to be the result of government efforts to regulate stormwater. Examples of localized flooding are found when: (1)property owners utilize undersized, concrete reinforced pipe on their property; (2) property owners change a governmentally approved open ditch on their property to an enclosed drainage facility; or, (3)owners of undeveloped property change the existing natural course

[13] Steering Committee Recommendations 5, 6, 7, 9, 10, 11, and 12 required that ■causes identified (by an LCG drainage analysis) must be cured by (the) responsible party if found to be localized•. The only recommendation which does not require an identification of causes is recommendation 7 which deals with existing roadways that have flooded in the past. Thus, all types of flooding, except this narrow exemption for existing roadways, require the identification of causes including existing and future flooding in residential and commericial structures as well as undeveloped land.

[14] The concept of localized flooding is not explicitly defined in the formal recommendations; hence this discussion defines localized flooding (and its conceptual opposite - systemic flooding) based on: (1)notes taken during Steering Drainage Subcommittee meetings during March, 2000; and, (2)illustrations of localized flooding in the commentary attached to Recommendation 17 (i.e. ■ As an example (of localized flooding problems) streets and roads designed as ♣open ditch♠ are being compromised by individual, haphazard subsurface installations of culverts•.

[15] In the commentary of Recommendation 13, the Steering Committee approved the statement that ■ The 100-year flood event is a practical design standard for this area of Louisiana considering that such a rain event is occuring not once every 100 hundred years, but more realistically every ten years.• Additionally, listed in Recommendation 14, a 100-Year Flood is a design criteria for retention and detention facilities. See footnote in section 1.4.2.3.7 for a discussion of 100-Year Floods.

of a drainage facility across their property. Examples of systemic flooding are found when: (1)governments improve or create drainage facilities that historically handled 100-Year Floods, but, due to urban development, no longer can handle a 100-Year Flood; or, (2)developers create drainage facilities which received governmental approval, but can no longer handle 100-year Flood due to urban development.

If flooding is found to be due to localized causes, then the identified party is responsible for the solution to the flooding problems. The solution must be approved by the Stakeholders.

Flooding may be attributable to systemic causes wherein local governmental jurisdictions are responsible for the construction or approval of the drainage facility. If local governmental jurisdictions located within the parish or their predecessor agencies (i.e., Lafayette Parish Police Jury, City of Lafayette, etc.) are responsible for the solution to the flooding problems, then those local governmental jurisdictions are responsible. If the problem is systemic wherein other governmental agencies (state or federal agencies, etc.) hold jurisdiction, then that agency is responsible for the solution.

1.6.1.5 The Stakeholders shall review and recommend solutions to the flooding causes in the drainage areas to the lead agency such that:

1) The solutions would mitigate flooding within the drainage area for a 100-Year Flood.

2) The solutions would mitigate downstream flooding outside of the drainage area for a 100-Year Flood.

3) The solutions are integrated and complimentary to the goals, objectives, and strategies in the Comprehensive Drainage/Storm Water Plan [as described in Goal 1.1]

4) Roadways designed to act as retention and detention facilities are not scheduled for drainage improvements if the existing flooding is confined to periods of a 100-Year Flood.

Objective

1.6.2 The Lead Agency encourages and mandates participation in the National Flood Insurance Program (NFIP) such that:

Potential Guidelines/Strategy

1.6.2.1 The stakeholders responsible for the CRS program implementation are identified [and described in Potential Guidelines/Strategy 1.2.1.4] as the parish-wide entity which coordinates local government participation in the CRS program.

1.6.2.2 The CRS stakeholders recommend modifications to the local flood zone ordinances to include the following changes required by the implementation of LINC:

1) Property owners of flooding structures are required to purchase NFIP insurance if: (1)there have been two NFIP insurance claims since the institution of the federal program; and, (2)the cost of each claim separately has been in excess of $1,000.[16]

2) Property owners of flooding residential and commercial structures may apply for local, state, and federal funds to elevate their structures or to sell their structures to the Lead Agency for demolition and removal if (1)there have been two NFIP insurance claims since the institution of the federal program and (2)the cost each claim separately has been in excess of $1,000.[17]

3) Habitually flooding structures are to be condemned if there have been three flooding events within 5 years with separate, individual NFIP claims in excess of $1,000. [18]

[16] Steering Committee Recommendations 5, 6, 9, and 10 require ▪Mandatory Federal Flood Insurance after the second event• for existing and future flooding events in both residential and commerical structures.

[17] Steering Committee Recommendations 5 and 6 for existing residential and commerical structures state: (1)▪Elevate structure - 1st utilizing grant funding and 2nd utilizing LCG resources• and (2) ▪Buy Out Option - 1st utilizing grant funding and 2nd utilizing LCG resources•. Data for habitual flooding from FEMA is readily available if these two limiting conditions are specified.

[18] Steering Committee Recommendations 5 and 6 for existing residential and commerical structures urge ▪Condemnation /Demolition with three documented flooding events within five years•. FEMA data is readily available for claims over $1,000, thus the addition of this limiting condition.

4) Structures built in the 100-Year Flood Plain are required to have a flood elevation certificate with a floor elevation of 12 inches or greater than the 100-year flood elevation[19] of a particular building site.[20]

5) Structures built above the100-Year Flood Plain are required to have a floor elevation of 12 inches or greater than the 100-year flood elevation of a particular building site based on the approved one foot contour map as described in Section 1.1 [21]

6) The design of the pre-development and post-development stormwater runoff system from a site with a LCG or other local government (participating in the drainage/stormwater plan) building permit shall seek to be equal to a 100-Year Flood.[22]

7) The developer's engineer [23] shall design hydraulic structures and retention systems for no increase in storm water runoff water quantity in excess of a 100-Year Flood from a building site.

8) The developer's engineer shall determine and certify:

[19] The defintion of the Base Flood Elevation (BFE) used in this drainage/stormwater plan is the one used by the Federal Emmergency Management Agency (FEMA). According to FEMA, the Base Flood Elevation (BFE) is "the elevation shown on the Flood Insurance Rate Map (FIRM) for Zones AE, AH, A1-A30, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO, V1-V30, and VE that indicates the water surface elevation resulting from a flood that has a 1 percent chance of equaling or exceeding that level in any given year". See the world wide web internet site as configured on March 1, 2001: http://www.fema.gov/nfip/19def2.htm.

[20] Steering Committee Recommendation 13 states "The Base Floor Elevation of all new structures should be constructed a minium of six inches (6") above the 100 Year federal flood hazard area (i.e by context, above the 100-Year Flood Zone Base Flood Elevation) as determined at the time of construction." Additionally, "A "Certificate of Elevation" will be required only in the Flood Hazard Area". CPIC Drainage Subcommittee eventually recommended this standard be set at 12 inches (12") above the Base Flood Elevation of a 100-Year Flood.

[21] Steering Committee Recommendation 13 states "... all new structures constructed outside the current Flood Hazard Area (i.e by context, above the 100-Year Flood Zone Base Flood Elevation) shall be elevated six inches (6") above grade level as a future flood prevention measure." No flood elevation certificate is required in areas above the 100 year flood elevation as discussed in the previous footnote. CPIC Drainage Subcommittee eventually recommended (1) this standard be set at twelve inches (12") above the Base Flood Elevation of a 100-Year and (2) use the one foot contour map as a method of determining the elevation of a site.

[22] Steering Committee Recommendation 14 uses "..100-Year Storm Flood" as a design criteria for "... all new development plats and plans that result in water runoff exceeding the pre-development condition".

[23] The developer's engineer is required to have a professional engineer's licence in civil engineering or other appropriate engineering discipline in order to approve construction drawings.

(1) an amount of an impact fee (using schedules adopted by LCG) equal to the construction and long-term maintenance of a retention and/or detention facility within the drainage area of said site equal to a 100-Year Flood or the portion thereof which is not detained/ retained on site; and/or,

(2) the size and performance of an onsite retention and detention facility required for a 100-Year Flood. The facility is to be constructed to be integrated into the Comprehensive Drainage/Storm Water Plan [as described in Goal 1.1].[24]

9) The drainage performance existing as a result of the implementation of the Comprehensive Drainage/Storm Water Plan is perpetual. If the site ceases to perform as approved and the site has not been modified, then the responsibility shall be the responsibility of the Lead Agency. If however, the site ceases to perform as approved and the site has been modified, then the responsibility for reestablishing drainage performance shall be the responsibility of the property owner.

Likewise, the drainage conditions as approved by LCG or other local government (participating in the drainage/stormwater plan) upon platting and receiving building permits shall be perpetual. If the site ceases to perform as approved and the site has not been modified, then the obligation shall be the responsibility of the Lead Agency. If however, the site ceases to perform as approved and the site has been modified, then the obligation for reestablishing approved conditions shall be the responsibility of the property owner. [25]

[24] Steering Committee Recommendation No. 14 states that ▪all new development plats and plans that result in increased water runoff exceeding the pre-development condition shall be required to mitigate the increase through ... two qualified options: (1) Construction of a retention facility that maintains the pre-development runoff; [or] (2) payment of an equivalent amount of funds to a public funded Drainage District(s) to construct and support a local area wide retention facility established for that purpose•.

[25] Steering Committee Recommendation 17 states that ▪Enforcement of existing and future drainage regulations must be consistent and strengthened and follow a due process.•

10) The advisory entity [created in goal 1.3], while acting in due process, shall determine the responsibility of flooding events and shall duly report their findings to the Lafayette City-Parish Planning Commission. A private landowner found to be liable for the flooding may present engineering or hydrological evidence supporting any counter claims when each report of findings is submitted to a body. [26]

1.6.2.3 The CRS stakeholders apply annually and during periods of special allocations (resulting from hurricanes or other storm events) to the Louisiana Office of Emergency Preparedness as well as other sources for grants to elevate or purchase habitually flooding structures. [27]

1.6.2.4 Using the information and maps [as described in the Potential Guidelines/Strategy 1.2.1.4], the CRS stakeholders identify the owners of inhabitable residential and business structures as well as undeveloped land that have flooded once, twice, or more.

1.6.2.5 The individuals identified in the previous Potential Guidelines/Strategy are notified of the changes in the LCG flood plain ordinance [as described in Potential Guidelines/Strategy 1.6.2.2].

1.7 GOAL: Institute a maintenance plan for drainage facilities so that the designed or natural performance capacity is maintained. [28]

Objective

1.7.1 The Lead Agency [as described in Potential Guidelines/Strategy 1.1.6.1] of the Comprehensive Drainage/Storm Water Plan develops a maintenance program for existing and new drainage facilities. See Illustration 1.7.

Potential Guidelines/Strategy

[26] See Section 1.6.1.4 for discussion of individual responsibility of landowners and Section 1.6.2.2 directly above for requirements of due process.

[27] Steering Committee Recommendations 5 and 6 describing actions for existing residential and commercial structures provide for elevation, condemnation, purchase, and/or demolition of structures first utilizing grant funds and then Comprehensive Drainage/Storm Water Plan resources. Such resources are described in Goal 1.7.

[28] Steering Committee Recommendation 15 states ▪all existing drainage ways should be under a regular and comprehensive maintenance program based on their designed or natural performance capacity and function.•

1.7.1.1 The Lead Agency, seeks approval for a bond issue for the construction and maintenance of facilities constructed and maintained as part of the Comprehensive Drainage/Storm Water Plan [and further described in Goal 1.1]

1.7.1.2 The monthly drainage utility revenues [as described in Potential Guidelines/Strategy 1.1.6.2] are dedicated to a Drainage Construction Fund for the sole purpose of payment of the drainage bond issues to implement the Comprehensive Drainage/Storm Water Plan.

1.7.1.3 The revenues collected from drainage impact fees [as described in Potential Guidelines/Strategy 1.6.2.2.7] are paid into the *Drainage Construction Fund* for the sole purpose of payment of the drainage bond issues to implement the Comprehensive Drainage/Storm Water Plan.

1.7.1.4 The Drainage Construction Fund receives revenues from three sources: (1) project impact fees, (2) drainage utility fees, and (3) fund transfers from the Drainage Replacement Fund [as described in Section 1.7.1.6]. The revenues from impact and utility fees are used to fund the drainage bond issue. The revenues from the Drainage Replacement Fund are used for emergency payments in cases of potential default on the bond issue.

1.7.1.5 Beyond collection of revenues for the financing, construction, and engineering costs, an additional percentage of the revenues is collected, set aside, and dedicated solely for maintenance of existing facilities which over time require work to preserve designed capacity. This fund shall be known as the *Drainage Maintenance Fund.* [29]

[29] In order to assure ▪a regular and comprehensive maintenance program• as described in Steering Committee Recommendation 15, additional revenues beyond those used for construction, engineering, and financing is required for maintenance and replacement of the system. The use of maintenance and replacement funds is a modeled after a standard component of United States Department of Agriculture - Rural Development grants for sewer and water projects .

Assuming a 40 year loan at 5.0% interest for a principal of $1,000,000, the annual payment of accumulated interest and principal is equal to $58,300 per year.

The sum of the set aside funds for the Drainage Maintenance Fund, Drainage Replacement Fund, as well as the Elevation and Buyout Funds can be estimated at 22% or $12, 800 of $58,300 per year project. Thus, if we add this $12,800 figure to the $58,300 figure cited above yields a total cost of $71,100 per year for each $1,000,000. At present, there are approximately 71,000 inhabited households in the parish. If we distribute this cost evenly, then the cost to each household is about $1.00 per year for each $1,000,000 of proposed projects.

The additional 22% for the financing funds will generate approximately $1,000,000 in savings over a 40 year period with a 3% return on the investment above inflation. Thus, the additional 22% will provide funds equal to the original construction cost plus inflation to be used for system replacement, maintenance, and buyouts.

Thus, these complex financing calculations can be simplified by saying that for each $1,000,000 of projects financed and constructed, the average cost per household in the year 2000 is about $1.00 per year. Assuming conservative rates of financing and investment, this amount will not only pay for project construction, but also for maintenance, buyouts, and system replacement.

1.7.1.6 Beyond collection of revenues for financing, construction, and engineering costs, an additional percentage of the revenues are collected, set aside, and dedicated solely for the replacement of existing facilities which overtime will degrade and need reconstruction. This fund shall be known as the *Drainage Replacement Fund.*

1.7.1.7 Beyond collection of revenues for financing, construction, and engineering costs, an additional percentage of the revenues are collected, set aside, and dedicated solely for the elevation or purchase of structures that have flooded three or more times in five years. This fund shall be known as the *Elevation and Buyout Fund.* [30]

1.7.1.8 Unused portions of the *Drainage Construction Fund*, the *Drainage Maintenance Fund*, the *Drainage Replacement Fund*, and the *Elevation and Buyout Fund* are each invested every six (6) months in separate accounts which (1)have the full faith and credit of the US government and (2)are liquid within 6 months with no loss of principal.

1.7.1.9 In even numbered years on or about the first working day after Veteran•s Day, an evaluation is made of the *Drainage Replacement Fund* and the *Elevation and Buyout Fund* to determine if fund transfers are necessary such that a portion of the *Buyout and Elevation Fund* is transferred to the *Drainage Replacement Fund*. The amount of the transfer is to be determined by the advisory committee [as defined in Objective 1.3.1] in concert with the Comprehensive Plan Implementation Committee.

1.7.1.10 Every four years on or about the first working day after Veteran•s Day, an evaluation is made of the *Drainage Maintenance Fund* and *Drainage Replacement Fund* to determine if fund transfers are necessary such that the portion of the *Drainage Maintenance Fund* is transferred to the *Drainage Replacement Fund.* The amount of the transfer is to be determined by the advisory committee [as defined in Objective 1.3.1] in concert with the Comprehensive Plan Implementation Committee.

[30] A reliable source of funding is required for provisions of the buyout and elevation options discussed in Potential Guidelines/Strategy 1.6.2.2 and the purchase habitually flooding property that is condemned and purchased by LCG in Potential Guidelines/Strategy 1.6.2.2. See the previous footnote for financing calculations.

1.8 GOAL: Limit use of roadways during periods of high rainfall.

Objective

1.8.1 Inventory roadways which have flooded during periods of high rainfall.[31]

Potential Guidelines/Strategy

1.8.1.1 Department of Traffic and Transportation stakeholders utilize the map which identifies and maps roadways susceptible to flooding during 100-Year Flood [as described in Strategies 1.5.1.3 and 1.5.1.4].

1.8.1.2 Department of Traffic and Transportation stakeholders install appropriate signage along roadways identified as susceptible to flooding such that:

Objective

[31]Steering Committee Recommendation 7 mandates (1) an inventory that roadways ■designed to be used as retention/detention facilities during high rainfall events•.

1.8.2 Install signage on roadways which have flooded during periods of high rainfall.[32]

Potential Guidelines/Strategy

1.8.2.1 Department of Traffic and Transportation stakeholders install appropriate signage along roadways identified as susceptible to flooding such that:

1) The roadway is identified to motorists and pedestrians as susceptible to flooding during 100-Year Flood.

2) The range of flooding is marked on sign post showing the highest and typical level of flooding that occurs within the right of way.

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[32]Steering Committee Recommendation 7 mandates ▪appropriate signage should be installed on these streets/roads with ♣No Traffic♠ identified above set flood level/stages•.